



Closed End Real Estate Funds and Real Estate Portfolio Management: Evidence from the Italian Retail Market

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ABSTRACT

Closed-end real estate funds (REMFs) are indirect real estate investment vehicles, traded in markets worldwide, that are considered an alternative to real estate investment trusts for indirect investments in the real estate market. REMFs are subject to a fixed time constraint that managers must consider in their portfolio management strategy to be able to refund quota holders by the expiration date. This additional constraint is a unique feature of the REMF industry in some European markets. We evaluate active management policy for a real estate portfolio of a sample of REMFs with respect to the expiration date of the financial instrument, and measure the impact of active management on the performance of real estate investment vehicles. We show that the time constraint affects the active management policy and that more active REMFs are usually positively evaluated by the market, especially when they can sell assets before the expiration date.

KEYWORDS

Real estate funds; closed end funds; portfolio turnover

Closed-end real estate funds (REMFs) are indirect real estate investment opportunities to invest in real estate assets or real estate ownership rights (Giannotti & Mattarocci, 2010) and, unlike real estate investment trusts (REITs) and open-ended real estate funds, are characterized by a limited time horizon and no option for refund upon request from the quota issuer (Gibilario et al., 2015). Overall performance for investors depends mainly on asset selection and portfolio construction; however, due to the fixed time horizon, the results are also affected by the ability to plan an acquisition and disposal process that minimizes the risk related to delay and/or failure in the disposal process (Giannotti, 2006).

REMFs were launched in Italy during the second half of the 1990s, and these funds registered their highest growth at the beginning of 2000 (Biasin, 2005). The time horizon of these investment opportunities is normally from 10 to 15 years and, if targeted to retail investors, they are listed in the stock market (Hoesli & Morri, 2010). Older Italian REMFs were expected to sell all their assets during the real estate market crisis, and numerous funds experienced many problems selling at prices similar to the balance sheet appraisal value (Assogestioni, 2013). The supervisory authorities allow managing companies to postpone the liquidation date via legal options to delay the refund date by no more than one year; only in a few cases has it been necessary to postpone the liquidation date further (Bank of Italy, 2017).

This study examines the portfolio allocation and turnover of Italian REMFs from 2003 to 2016 and evaluates the impact of new investments and disposals on market performance. We begin by reviewing the literature on the impact of portfolio management choices on the performance of

real estate investment vehicles. We then evaluate the portfolio turnover of Italian REMFs during their lifetime. In the last section, we summarize our results and discuss their implications for both fund managers and investors.

Literature Review

The growth of the asset management industry during the past decades has been ascribed to managers' asset selection and wealth maximization throughout portfolio management, especially for unskilled investors. The option of delegating investment choices to professional managers is economically exploitable only if the expected returns can cover the associated transaction costs (management and incentive fees) and can earn investors at least the same return as similar investment opportunities in the market (Wermers, 2000).

Indirect real estate investment opportunities create value for quota holders/shareholders by constructing portfolios that maximize diversification benefits, selecting only the best investment opportunities, and exploiting economies of scale and/or scope to execute buy and sell orders of real estate assets and/or to manage ordinary and extraordinary maintenance expenditures (e.g., Miles & McGue, 1982). The advantages related to real estate investment vehicles are normally greater than those of the ordinary asset management industry due to the higher cost of initial investment in the industry and the lower liquidity of the direct real estate investment market.

Portfolio turnover choices for indirect real estate investment opportunities can directly affect the market value of investor shares and quotas, based on the manager's ability to adopt effective market timing and/or asset picking strategies (Bond & Mitchell, 2010). The effect of portfolio turnover is expected to be greater for real estate funds and REITs with respect to the rest of the asset management industry because the portfolio assets are opaque and investors can only gain an idea of the asset value based on periodic appraisals (Damodaran & Liu, 1993).

The performance of an active portfolio strategy is maximized when the manager is able to identify investment opportunities that are not properly priced by the market in terms of both the selling price and the rent value and in terms of specific real estate assets more exposed to mispricing. Value-added and/or opportunistic real estate investments are assets with a higher probability of market mispricing due to greater uncertainty associated with properly evaluating the impact of refurbishment on the future price of rent.

The performance of an active portfolio strategy is normally higher if the investment opportunities are opaque, because managers can try to take advantage of the information asymmetry by increasing the real estate portfolio's turnover in their management strategy (Engstrom, 2003). Empirical evidence shows that, even if information about market features and dynamics is available to all interested investors, the performance of a single real estate investment opportunity cannot be fully explained by sector/market trends, and there are always real estate assets that are incorrectly priced or evaluated by appraisals that could potentially be interesting for active investment strategies (Ling, 2005).

The impact of portfolio turnover on overall performance for quota holders depends on the manager's ability to achieve higher net returns with respect to other investment opportunities, considering transaction costs and the time necessary for asset acquisition/disposal. Empirical evidence shows that, due to the real estate market's lower liquidity, the net return of an active investment strategy is expected to be more relevant for real estate funds with respect to other assets (Kallberg et al., 2000).

Unlike other assets, the choice of an actively managed portfolio of real estate assets does not always imply an increase in investor risk (Philpot & Peterson, 2006) and portfolio turnover could, therefore, be interesting for managers who want to collect money from investors with low risk profiles. The advantages related to active management in the real estate industry must be carefully measured, because the market benchmark might not be representative of the return and risk of

Table 1. Sample.

Name	Listing date	Name	Listing date
Alpha Immobiliare	2002	Invest Real Security	2005
Amundi Re Europa	2002	Mediolanum Re A	2012
Amundi Re Italia	2002	Mediolanum Re B	2012
Atlantic 1	2006	Obelisco	2006
Atlantic 2	2005	Olinda	2004
Beta	2005	Piramide globale	2002
BNL portfolio immobiliare	2002	Polis	2001
Caravaggio	2005	Portfolio Immobiliare Crescita	2003
Delta Immobiliare	2009	Risparmio Immobiliare Uno Energia	2009
Estense Grande Distribuzione	2004	Securifondo	2001
Europa Immobiliare 1	2006	Socrate	2014
Immobiliare Dinamico	2011	Tecla	2008
Immobiliarium 2001	2003	Unicredit Immobiliare Uno	2001
Investietico	2004	Valore Immobiliare Globale	1999

Source: Borsa Italiana.

the real estate investment opportunities available to the fund manager, due to the higher heterogeneity and lower liquidity with respect to other sectors of the asset management industry (Brounen et al., 2007).

Empirical Analysis

Sample

The sample includes all retail real estate funds listed in the stock market since the beginning of the Italian market up to the end of 2016 (Table 1).

The Italian retail real estate market is quite small (28 funds), and all real estate investment vehicles are young; the first real estate fund was only listed in 1999 and most of the funds (more than 82%) were listed in the first decade of the 2000s.

For each real estate fund, information about the starting date, original expiration date, and (eventually) the option to postpone the expiration date is collected to evaluate the frequency of use of this option for the Italian real estate market (Table 2).¹

Less than 18% of REMFs have yet to reach the initially declared deadline; for these funds the management company has not requested a grace period. By the end of 2016, only three funds had reached the expiration date, and they did not request postponement of the refund date: One was able to refund investors before the expected deadline (Piramide Globale), the second refunded quota holders by selling its entire portfolio to another real estate fund managed by the same company (Caravaggio), and the last fund (Portfolio Immobiliare Crescita) was obliged to refund its investors because the grace period request was submitted later than required by the supervisory authority guidelines.

All the other listed real estate funds (20) requested a grace period and, for the majority of these, the request involved a postponement of no more than three years (55%), with only one managing company asking to increase the time horizon of the investment opportunity beyond another 6 years (for a total of 15 years).

For all the funds in the sample, portfolio composition data were collected for both the standard expiration and grace periods to test for differences in active management policy between the two periods. The database was supplemented by information about daily prices, market size, book value, and other market information collected from the Thomson Reuters database.

Methodology

The active portfolio management strategy is examined by considering the frequency and value of portfolio turnover during the lifetime of REMFs. The analysis measures portfolio turnover following

Table 2. Funds classified on the basis of the expiration date and the exercise of the grace period option.

	Number	Percentage
Funds not expired	5	17.86%
Funds expired that do not request the grace period	5	17.86%
Funds expired that exercise the grace period option	20	71.43%
Up to 3 years	11	55.00%
From 4 to 6 years	8	40.00%
More than 6 years	1	5.00%

Notes. All funds evaluated as of December 31, 2016.

Source: Annual report data processed by the authors.

the approach of Sharpe et al. (1999) and separately evaluates acquisitions and disposals with respect to the time to expiration of the real estate investment vehicle. In formulas, turnover is defined as follows:

$$Turnover_{it}^{All} = \frac{Buy_{i, n-t}^{Value} + Sell_{i, n-t}^{Value}}{\left(\frac{RE_{i, n-t}^{Value} + RE_{i, n-t-1}^{Value}}{2}\right)} \quad (1a)$$

$$Turnover_{it}^{Buy} = \frac{Buy_{i, n-t}^{Value}}{\left(\frac{RE_{i, n-t}^{Value} + RE_{i, n-t-1}^{Value}}{2}\right)} \quad (1b)$$

$$Turnover_{it}^{Sell} = \frac{Sell_{i, n-t}^{Value}}{\left(\frac{RE_{i, n-t}^{Value} + RE_{i, n-t-1}^{Value}}{2}\right)}, \quad (1c)$$

where the turnover proxy is constructed by considering the appraisal value of the real estate assets owned by fund i at $n - t$ years before the expiration date ($RE_{i, n-t}^{Value}$) and the market value of real estate assets bought ($Buy_{i, n-t}^{Value}$) and sold ($Sell_{i, n-t}^{Value}$) over one year.

To consider portfolio turnover frequency independent of the value of each asset traded, an active management strategy is constructed by considering only the number of assets traded. In formulas, trading is defined as follows:

$$Trading_{it}^{All} = \frac{Buy_{i, n-t}^{Number} + Sell_{i, n-t}^{Number}}{\left(\frac{RE_{i, n-t}^{Number} + RE_{i, n-t-1}^{Number}}{2}\right)} \quad (2a)$$

$$Trading_{it}^{Buy} = \frac{Buy_{i, n-t}^{Number}}{\left(\frac{RE_{i, n-t}^{Number} + RE_{i, n-t-1}^{Number}}{2}\right)} \quad (2b)$$

$$Trading_{it}^{Sell} = \frac{Sell_{i, n-t}^{Number}}{\left(\frac{RE_{i, n-t}^{Number} + RE_{i, n-t-1}^{Number}}{2}\right)} \quad (2c)$$

where the trading proxy is constructed by considering the number of real estate assets owned by fund i at $n - t$ years before the expiration date ($RE_{i, n-t}^{Number}$) and the number of real estate assets bought ($Buy_{i, n-t}^{Number}$) and sold ($Sell_{i, n-t}^{Number}$) over one year.

The analysis considers the impact of the active portfolio management strategy on REMF performance to evaluate whether the market evaluates the portfolio turnover positively or negatively. The performance proxy is constructed by considering capital gains and losses registered over one year, dividend payments, and capital refunds:

$$R_{it} = \ln\left(\frac{P_t + D_t + R_t}{P_{t-1}}\right) \quad (3)$$

where P_t is the closing price of the REMF on the last trading day of year t , D_t is the sum of dividends per share paid during year t , and R_t is the sum of refunds per share paid during year t . A preliminary analysis of the impact of turnover is performed by considering the summary statistics of REMF performance based on turnover and trading proxies.

To measure abnormal performance related to REMFs in year t , we follow the approach proposed by Jensen (1968) and consider the standard approaches in the literature for the analysis of REMF active performance (Lin & Yung, 2004). In formulas, abnormal return is defined as follows:

$$\alpha_{it}^{CAPM} = R_{it} - \left[rf_t + \beta_{it}^{MKT} RP_t^{MKT} \right] \quad (4)$$

$$\alpha_{it}^{F\&F} = R_{it} - \left[rf_t + \beta_{it}^{MKT} RP_t^{MKT} + \beta_{it}^{SMB} RP_t^{SMB} + \beta_{it}^{HML} RP_t^{HML} \right] \quad (5)$$

$$\alpha_{it}^{Carhart} = R_{it} - \left[rf_t + \beta_{it}^{MKT} RP_t^{MKT} + \beta_{it}^{SMB} RP_t^{SMB} + \beta_{it}^{HML} RP_t^{HML} + \beta_{it}^{MOM} RP_t^{MOM} \right] \quad (6)$$

Equation (4) is the abnormal return with respect to the capital asset pricing model (CAPM; see Sharpe, 1964). Based on our sample characteristics, we use the return of a three-month Italian Treasury bill as a proxy for the risk-free rate (rf_t) and the spread between the risk-free and value-weighted indices of all Italian listed real estate funds as a proxy for the market benchmark (RP_t^{MKT}). The term β_{it}^{MKT} is computed with weekly data and measures the sensitivity of quota returns with respect to the index return in the two previous years.

Equation (5) is the abnormal return with respect to the Fama–French (1993) model. The two new factors included in this model with respect to the CAPM are the performance differences between real estate funds of small and large capitalization (RP_t^{SMB}) and between real estate funds with high and low book-to-market ratios (RP_t^{HML}). Both β_{it}^{SMB} and β_{it}^{HML} are computed with weekly data and measure the sensitivity of returns in the previous two years with respect to these two indices.

Equation (6) is the REIT abnormal return with respect to the Carhart (1997) model. The new factor added with respect to the Fama–French model is the performance difference between real estate funds of high and low past performance (RP_t^{MOM}), where β_{it}^{MOM} is computed with weekly data and measures the sensitivity of returns in the two previous years with respect to this index.

The summary statistics of the extra return of funds with positive trading and turnover and others are presented to evaluate if the choice of an active investment strategy affects the abnormal performance measured with the three α proxies.

Given a fixed effects ordinary least squares regression panel model, Jensen’s alphas are computed to examine the CAPM, Fama–French, and Carhart models with respect to the trading and turnover proxies for each REMF in the sample, as follows:

$$\alpha_{it}^j = \varphi_i + \gamma_i Turnover_{it}^{All} + \sum_{k=1}^n \tau_i^k CV_{it} + \varepsilon_{it} \quad (7a)$$

$$\alpha_{it}^j = \varphi_i + \gamma_i^{Buy} Turnover_{it}^{Buy} + \gamma_i^{Sell} Turnover_{it}^{Sell} + \sum_{k=1}^n \tau_i^k CV_{it} + \varepsilon_{it} \quad (7b)$$

$$\alpha_{it}^j = \varphi_i + \gamma_i Trading_{it}^{All} + \sum_{k=1}^n \tau_i^k CV_{it} + \varepsilon_{it} \quad (8a)$$

$$\alpha_{it}^j = \varphi_i + \gamma_i^{Buy} Trading_{it}^{Buy} + \gamma_i^{Sell} Trading_{it}^{Sell} + \sum_{k=1}^n \tau_i^k CV_{it} + \varepsilon_{it} \quad (8b)$$

where α_{it}^j is Jensen’s alpha computed for real estate fund i at time t using one of the three approaches previously identified in Equations (4) to (6); $Turnover_{it}^{All}$, $Turnover_{it}^{Buy}$, and $Turnover_{it}^{Sell}$ are turnover proxies constructed based on Equations (1a) to (1c), respectively; $Trading_{it}^{All}$, $Trading_{it}^{Buy}$, and $Trading_{it}^{Sell}$ are trading proxies constructed based on Equations (2a) to (2c), respectively.

The set of n controlling variables CV_{it} is selected accordingly to Brounen et al. (2007) and relates to assets, liabilities, income, and market performance, with the following control variables:

- $Size_{it}$, the natural logarithm of market capitalization;
- $Debt\ ratio_{it}$, the ratio of outstanding debt to equity;

Table 3. Average turnover and trading classified on the basis of time to expiration date.

Years to expiration	Number of real estate funds	No portfolio change	Turnover			Trading		
			$Turnover_{it}^{All}$	$Turnover_{it}^{Buy}$	$Turnover_{it}^{Sell}$	$Trading_{it}^{All}$	$Trading_{it}^{Buy}$	$Trading_{it}^{Sell}$
15	10	0.00%	163.89%	163.89%	0.00%	172.11%	172.11%	0.00%
14	11	18.18%	70.00%	69.64%	0.36%	54.67%	54.30%	0.36%
13	11	36.36%	20.94%	18.70%	2.25%	19.74%	17.56%	2.17%
12	13	30.77%	39.28%	39.14%	0.14%	33.94%	31.88%	2.06%
11	14	21.43%	22.43%	19.72%	2.71%	23.34%	19.88%	3.46%
10	22	18.18%	34.26%	31.67%	2.59%	45.81%	42.09%	3.72%
9	22	22.73%	30.28%	26.84%	3.43%	24.85%	21.28%	3.57%
8	25	28.00%	22.06%	12.40%	9.66%	29.70%	15.19%	14.51%
7	29	17.24%	29.15%	15.34%	13.81%	40.10%	17.10%	23.00%
6	30	36.67%	20.09%	15.19%	4.89%	16.62%	11.45%	5.17%
5	29	34.48%	19.17%	7.56%	11.61%	26.50%	7.15%	19.36%
4	27	33.33%	14.53%	9.63%	4.90%	14.58%	8.03%	6.55%
3	26	53.85%	4.61%	0.45%	4.16%	6.06%	1.14%	4.92%
2	26	38.46%	6.58%	1.85%	4.73%	8.49%	2.05%	6.45%
1	25	60.00%	6.78%	0.00%	6.78%	4.36%	0.00%	4.36%
0	23	39.13%	28.69%	0.00%	28.69%	21.96%	0.00%	21.96%
Overall		32.65%	24.53%	17.19%	7.35%	25.75%	16.66%	9.09%

Notes. The table presents summary statistics of the active management proxies computed on the basis of the number of years to expiration date. The active management proxies are the turnover and trading proxies constructed by considering all real estate trades (Equations [1a] and [2a]), only the new acquisitions (Equations [1b] and [2b]) or the disposals (Equations [1c] and [2c]).

Source: Annual report data processed by the authors.

DY_{it} , the dividend yield, computed as the ratio between the last dividend payment and the current price;

EPS_{it} , the amount of earnings per share outstanding;

PE_{it} , the ratio between the current market price and the last earnings per share available;

$PTBV_{it}$, the ratio between the share's market value and book value, a measure of the share's net asset value discount.

The analysis is conducted with an unbalanced panel regression, focusing on the impact of portfolio turnover on the model's statistical fit.

Results

A preliminary analysis of the average value of turnover and trading for funds classified based on the number of years to the expiration date reveals interesting differences in time trends (see Table 3). The portfolio is not always actively managed and, on average, around 32% of funds do not change their portfolio within the one-year horizon. Turnover is, on average, lower than the trading proxy (24.53% and 25.75%, respectively), demonstrating that smaller real estate assets are more frequently traded during the expected life of the fund. For both the turnover and trading proxies, the average values related to acquisition (17.19% and 16.66%, respectively) are around double the values for disposal (7.35% and 9.09%, respectively).

Overall, turnover and trading peak in the initial stage of the real estate funds and decrease over time, up to the last year of the instrument's life. The high values of turnover and trading during the first years of a real estate fund's life are driven by the real estate asset acquisition strategy and the role of asset sales becomes, on average, relevant only for a few other years, with no clear time trend in the volume or amount of sales.

Real estate funds that exercised the grace period option behave differently with respect to the periods during the standard life of the investment vehicle and the periods of active management policy changes immediately after the expiration date (Table 4).

Table 4. Average turnover and trading after the expiration date.

Years after expiration	Number of real estate funds	No portfolio change	Turnover			Trading		
			$Turnover_{it}^{All}$	$Turnover_{it}^{Buy}$	$Turnover_{it}^{Sell}$	$Trading_{it}^{All}$	$Trading_{it}^{Buy}$	$Trading_{it}^{Sell}$
1	19	42.11%	8.44%	0.00%	8.44%	8.26%	0.00%	8.26%
2	15	20.00%	24.21%	0.00%	24.21%	18.60%	0.00%	18.60%
3	10	10.00%	47.27%	0.00%	47.27%	30.21%	0.00%	30.21%
4	6	0.00%	83.36%	0.00%	83.36%	46.56%	0.00%	46.56%
5	4	50.00%	6.98%	0.00%	6.98%	6.35%	0.00%	6.35%
6	2	0.00%	121.29%	0.00%	121.29%	44.44%	0.00%	44.44%
Overall		25.00%	30.63%	0.00%	30.63%	20.08%	0.00%	20.08%

Notes. This table presents summary statistics of the active management proxies computed on the basis of the number of years after the expiration date. The active management proxies are the turnover and trading proxies constructed by considering all real estate trades (Equations [1a] and [2a]), only the new acquisitions (Equations [1b] and [2b]) or the disposals (Equations [1c] and [2c]).

Source: Annual report data processed by the authors.

Table 5. REMFs' abnormal performance and turnover/trading proxies.

Active mgmt	Statistics	α_{it}^{CAPM}		$\alpha_{it}^{F\&F}$		$\alpha_{it}^{Carhart}$	
		Passive	Active	Passive	Active	Passive	Active
$Turnover_{it}^{All}$	Average	-1.08%	-0.76%	-1.24%	-0.79%	-0.45%	0.08%
	Δ		+0.32%		+0.46%		+0.54%
$Turnover_{it}^{Buy}$	Average	-0.88%	-0.85%	-0.93%	-1.01%	-0.14%	-0.04%
	Δ		+0.03%*		-0.08%		+0.09%
$Turnover_{it}^{Sell}$	Average	-1.14%	-0.62%	-1.34%	-0.59%	-0.45%	0.20%
	Δ		+0.52%		+0.74%		+0.65%
$Trading_{it}^{All}$	Average	-1.05%	-0.76%	-1.22%	-0.79%	-0.42%	0.08%
	Δ		+0.29%		+0.44%		+0.51%
$Trading_{it}^{Buy}$	Average	-0.87%	-0.85%	-0.92%	-1.01%	-0.12%	-0.04%
	Δ		+0.02%*		-0.09%		+0.08%**
$Trading_{it}^{Sell}$	Average	-1.12%	-0.62%	-1.32%	-0.59%	-0.43%	0.20%
	Δ		+0.49%		+0.73%		+0.63%

Notes. The table presents summary statistics of performance achieved by real estate funds on the basis of the REMF's degree of active management. The active management proxies are the turnover and trading proxies constructed by considering all real estate trades (Equations [1a] and [2a]), only the new acquisitions (Equations [1b] and [2b]) or the disposals (Equations [1c] and [2c]). REMFs are classified as Active if the active management proxy is higher than zero and Passive otherwise. Average is the arithmetic average of abnormal returns for REITs classified in one of the two categories (Active/Passive), and Δ is a test on the average difference between the two subsamples (Active/Passive).

*Statistically significant at the 90% level.

**Statistically significant at the 95% level.

***Statistically significant at the 99% level.

Source: Thompson Reuters and annual report data processed by the authors.

As expected, the volume of new investments released after the expiration date is always equal to zero, since the supervisory authority requires real estate funds to refrain from new investments during the grace period. Neither sales for trading nor turnover exhibit a clear time trend, and assets sold at this stage are normally above average-sized investment opportunities.

Analysis of performance based on the change of the portfolio of real estate assets under management reveals interesting differences between REMFs that change their portfolio composition and those that do not (Table 5).

REMFs that modify assets under management by buying or selling real estate assets perform, on average, better than those that do not, and the results hold independent of the active performance measure (CAPM, Fama–French, or Carhart) or portfolio change measure (turnover or trading). Separate analysis of the performance of REMFs that buy new assets and those that sell them show that the former could have lower average advantages related to portfolio active performance, whereas the latter seem to maximize the benefits. Results obtained are frequently statistically non-significant because each REMF has unique features that may affect its performance and the active performance measure.

Table 6. Jensen's alpha and active portfolio management strategy.

	α_{it}^{CAPM}				$\alpha_{it}^{F&F}$				$\alpha_{it}^{Carhart}$			
	(7a)	(7b)	(8a)	(8b)	(7a)	(7b)	(8a)	(8b)	(7a)	(7b)	(8a)	(8b)
ρ_{it}	-5.26*	-5.36*	-6.11*	-5.61*	-6.40*	-6.61*	-7.91*	-7.32*	-5.30*	-5.41*	-6.10*	-5.88*
$Turnover_{it}^{Buy}$	0.09				0.10				-0.05			
$Turnover_{it}^{Sell}$		-1.08*				-1.48*				-0.62*		
$Trading_{it}^{All}$		0.77*				1.36*				0.27*		
$Trading_{it}^{Buy}$			0.29				0.51*				0.24	
$Trading_{it}^{Sell}$				-1.23*								
$Debt\ ratio_{it}$	0.28*	0.28*	0.32*	0.40*	0.34*	0.35*	0.42*	0.66*	0.32*	0.33*	0.36**	-0.61*
DY_{it}	0.75*	0.82*	0.81*	0.78*	1.03*	1.12*	1.16*	0.39*	0.29*	0.26*	0.20*	0.35**
EPS_{it}	-0.26*	-0.57**	-0.33*	0.40*	-0.35*	-0.77**	-0.50*	-0.61**	-0.49**	-0.65**	-0.61**	-0.65***
PE_{it}	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
$PTBV_{it}$	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Observations	-0.64***	-0.62***	-0.63***	-0.62***	-0.79***	-0.78***	-0.78***	-0.78***	-0.47***	-0.47***	-0.47***	-0.47***
Ordinary R ²	293	293	293	293	293	293	293	293	293	293	293	293
Adjusted R ²	51.60%	52.25%	51.85%	52.28%	45.66%	46.46%	46.12%	46.77%	45.36%	45.58%	45.51%	45.68%
	50.41%	50.91%	50.67%	50.93%	44.33%	44.95%	44.80%	45.27%	44.01%	44.05%	44.17%	44.15%

Notes. The table presents results of a fixed effect panel regression linear model of REMF abnormal performance and real estate investment vehicle features. The dependent variables (α_{it}^{CAPM} , $\alpha_{it}^{F&F}$, and $\alpha_{it}^{Carhart}$) are the active performance measure computed by using Equations (4), (5), and (6). The model considers independent variables related to portfolio turnover ($Turnover_{it}^{Buy}$, $Turnover_{it}^{Sell}$), portfolio trading ($Trading_{it}^{All}$, $Trading_{it}^{Buy}$, and $Trading_{it}^{Sell}$), the size measure as a natural logarithm of market value ($Size_{it}$), the ratio of outstanding debt to equity ($Debt\ ratio_{it}$), the dividend yield (DY_{it}), the amount of earnings per share outstanding (EPS_{it}), the ratio between the current market price and the last earnings per share available, and the ratio between the share's market value and book value ($PTBV_{it}$).

*Statistically significant at the 90% level, ** Statistically significant at the 95% level, *** Statistically significant at the 99% level.

To consider the differences among different funds in the sample that could affect active performance, a fixed effect panel regression model is considered to examine the impact of turnover and trading proxies on REMF abnormal returns (Table 6).

Independent of the active performance measure, REMF size has a positive impact on performance, and the degree of leverage has a positive impact on abnormal performance. Higher dividend payments and price-to-book value reduce investor risk and, therefore, this type of REIT is normally less concerned about positive abnormal returns.

The overall turnover and trading proxies do not affect abnormal performance per se because the effects of investments and disinvestments balance each other out. Separate analysis of new investments and disinvestments clearly shows that new asset purchases reduce REMF active performance, while asset sales have a positive effect on extra performance. The impact of new asset purchases on active performance measures is driven more by the number of assets added to the existing portfolio, whereas the impact of sales is driven more by the value of each asset sold.

Conclusion

Frequently, REMFs are unable to actively manage their portfolios, and many are unable to sell all their assets before the expiration date; investors must thus wait longer than expected to be refunded. Assets unsold by the expiration date are frequently larger and, therefore, due to the higher value of the transaction and, thus, the lower number of potential investors, the real estate fund's negotiating power is at a minimum and the risk of losses at a maximum.

Performance analysis shows that the more a portfolio is actively managed, the better the market reacts in term of abnormal performance. If the sales and acquisitions of real estate assets are considered separately, empirical evidence shows that Jensen's alpha increases when REMFs start to sell and decreases when new assets are bought. For sales, the main issue for the market is the size of the assets sold, and bigger sales affect listed REMF stock performance the most. For acquisitions, even small new acquisitions significantly affect performance negatively. Empirical evidence suggests that closed end real estate funds may benefit from properly planning real estate disposals so as not to concentrate them in only a few years, thus maximizing the actual value of the positive abnormal performance achieved for the quota holders when assets are dismissed at fair value.

The results on REMF performance show that support for active management strategies and are consistent with the literature on (open- and closed-end) real estate funds worldwide (O'Neal & Page, 2000). The main issue for REMFs is disposal scheduling, that is, the period in which REMFs can normally outperform the market. Therefore, the choice to postpone asset sales has a negative effect on real estate investor wealth and better asset sales planning could be beneficial for investors. The results could be affected by the specific market and period considered and, to generalize the empirical evidence, it would be useful for a similar analysis to be performed on other European markets that have closed-end funds regimes (PWC, 2016) and which are theoretically exposed to the same type of risk related to portfolio active management strategy.

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Notes

1. Table 1 presents the results for funds classified based on the last declared expiration date, independent of the number of Board of Directors meetings necessary to define the time horizon of the REMF. The data are updated as of December 31, 2016.

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