The impact of real estate portfolio composition on the Italian real estate funds performance

By

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Abstract

In Italy the criteria for selecting real estate investments are subjects of discussion between practitioners and academics, also because the Italian real estate funds have grown considerably in recent years in terms of both asset under management size and of number of funds. The aim of paper is to investigate the investment policies and composition choices of Italian retail funds portfolio, looking at the impact on funds performance measured through the Sharpe ratio, widely used in real estate literature.

In literature there are a large number of studies that deal with portfolio composition choices and how these have an impact on real estate funds performance (Morri and Erbanni 2008, Baum and Steffan 2009), measured with several Risk adjusted performance indicators such as Sharpe ratio, Treynor ratio, etc. (Plantinga and de Groot 2001, Scholz and Wilkens 2005, Bacon, 2010). The theme of real estate vehicles performance has been widely dealt with at European level (Otten and Bams 2002, Grau-Carles et al. 2009, Giannotti and Mattarocci 2010, Lee and Morri 2009). This paper collocates in these studies, in particular it has drawn on from this latter, since it takes into account the main components of the investment (properties), but differs with reference to the existing literature in considering only patrimonial aspect related to funds investment policies, and the residual investment, trying to prove whether this may affect the fund's performance examined. By using a data set with annual and half-yearly data provided by "Report of Scenari Immobiliari", it has been examined a sample of 19 Italian retail funds over the period 2006-2009. The trend of the estimated coefficients has been studied using a multiple cross-section analysis in order to verify whether the weight of several variables changed over time.

It has been possible to extract useful information about the relationships between real estate portfolio composition choices and Italian retail funds performance. Indeed, analyzing the geographical and sectorial portfolio composition, the Italian funds tend to the specialization and not to the diversification, mainly investing in properties with target use in office and retail which are located in Northwest and Central areas rather than in the South and in the Islands. The study on the portfolio composition choices has been completed with the analysis of liquidity and bonds that appear to have a lower incidence in the investment policies of the retail funds and then on their performance.

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1. **Introduction**

In Italy the criteria for selecting real estate investments are subjects of discussion between practitioners and academics, also because the Italian real estate funds have grown considerably in recent years in terms of both asset under management size and of number of funds.

According to the "half-yearly Report on Italian real estate funds" Italian real estate fund industry continues its growth despite a certainly not favourable economic environment.

Both the asset under management and assets volume increased in 2009, as a matter of fact on December 31, 154 operative real estate funds surveyed by Assogestioni/IPD were composed for 85.1% by reserved funds and for 14.9% by retail funds; these funds have an asset under management equal to 22.054,7 mln €, with an increase of 7.9% compared to June 2009 (+9.4% in one year and +44.1% in three years). Besides, the assets volume has increased to 38.316,9 mln €, with a growth of 8.4% in 6 months (+10.7% in 1 year and +51.5% in 3 years).

The process of management of real estate portfolio consists of a series of steps that concern: the identification of the investment targets and constraints (size of the portfolio, risk and return profile, etc) analysis of present features and future perspectives of real estate market, the determination of the optimal portfolio (indifference curves of the manager, and efficient frontier of the market) and the formulation of a portfolio strategy (choice of investments, diversification, etc) (Breglia and Catella, 2000).

The aim of this paper is to investigate the investment policies and composition choices of Italian retail real estate funds portfolio, looking at the impact on funds performance measured through the Sharpe ratio.

In particular the research questions are:

✓ in which way, the components of residual and exclusive investment contribute to the improvement of fund performance in real estate funds investment policies ?

✓ does sectorial diversification have a major impact on fund performance than geographical diversification in real estate portfolio composition choices?

This paper is organized in four sections: literature review about real estate portfolio composition choices (section 2.1), real estate funds performance (section 2.2) and the impact of real estate portfolio composition choices on funds performance (section 2.3).

The empirical analysis will be illustrated through the sample examined (section 3.1) and the survey methodology (section 3.2). The results of the empirical analysis will be show in (section 3.3) and last section summarizes some brief conclusions and the research perspectives.

2. Literature review

2.1 Real estate portfolio composition choices

The choices relating to a portfolio construction take into account the standard criteria of geo-sectorial segmentation of investment portfolio.

The most common classification adopted in literature provides for the segmentation based on target use in housing, commercial, industrial and offices (Young, 2000).

Another important element of real estate portfolio diversification is the investment location which allows to distinguish properties in terms of region, size of integration context, a particular location inside urban area (Cacciamani, 2003).

The assessment of specific area of property location requires a thorough examination of numerous factors, such as the degree of economic development of the urban context, the possibility of intervention on the urbanization conditions, the hypothesis of redefining the urban structure of the city and the structure of the road system (Cacciamani and Ielasi, 2010).

Moreover, the choice of investment area can affect significantly on ratio return/risk of portfolio. At the European level 2 macro-areas may be identified: the countries in which real estate sector has a high maturity degree and the countries which have the greatest perspectives for the development of real estate industry (Cacciamani and Ielasi, 2010).

The real estate investment analysis points out how the overall risk is mainly determined by the Real estate portfolio composition choices concerning geographical and sectorial diversification, the size of the city of property location, the degree of economic concentration and "single name" concentration (Giannotti and Mattarocci, 2010).

The reduction of the risk resulting from the portfolio diversification is directly linked to the average correlations existing among the investments (Byrne and Lee, 1999) .

The lower is the level of correlation between assets, the greater is the potential for portfolio risk reduction and increased returns. The success of a particular diversification strategy consequently depends upon the quality of the estimated correlation between assets (Lee, 2002).

The overall investment risk may be reduced by increasing the number of assets held and by investing in real estate whose value isn't directly correlated to or depending on the same factors (Lee, 2005).

According to the results of numerous studies, the general consensus is that property type diversification is preferable to geographical diversification in terms of risk reduction (Viezer, 2000 and Hamelink et al., 2000)

There are several studies of regional and sectorial diversification in literature, such as Eichholtz et al.(1995) who have analyzed data from the USA and UK to determine whether diversification within a region by property-type is better than diversification between regions within a property type, using a set of methods including correlation analysis and mean-variance analysis. The choice of diversification at sectorial or geographical level varies in relation to both the market studied, and the type of property considered.

At the international level, a large number of studies argue that in a country sectorial diversification dominates geographical diversification (Lee and Byrne, 1998, Lee, 2001, Lee and Devaney, 2007) as the former provides more benefits than regional diversification, so portfolio managers should opt sectorial diversification as a first choice. (Fisher and Liang, 2000, Lee, 2001, Lee and Byrne, 2010).

Coherently with literature, the analysis made by Glascock and Lynne 2007 adds new considerations to the debate about the benefit arising from geographical and sectorial diversification by extending the framework to include international portfolio diversification strategies.

With reference to the Italian market Gabrielli and Lee (2009) investigated the benefits of regional versus sector diversification on an Italian real estate portfolio. Their analysis, applying the cross-sectional regressions, has been conducted in 27 Italian cities over the period from 1989 to 2007. The results show that sector and regional factors affected real

estate returns in almost equal measure so a diversification strategy based on regions may be as good as a sector based approach. Moreover the analysis revealed that more recently in Italy the sector factor has started to dominate on the regional effect.

A research on composition choices and on the trend of retail funds conducted by Cacciamani and Ielasi (2006) points out that retail funds are oriented towards specialization rather than towards the diversification. Retail funds invest in a specific property compartment "office", and they concentrate their investment in the North-West and in the Centre. The results show how geographical diversification is less relevant than the sectorial one.

Cacciamani and Ielasi (2010) have made further analysis on retail funds enhancing the sample examined and have made a comparison between Italian real estate and European funds in order to study extensively investment policies, verifying the relationships between them and the performances achieved. Even in this case, the overall results show a strong concentration of the portfolio as retail funds are specialized both sectorial and geographical. Some regions have a higher level of maturity and market saturation than others, leading to a different impact on the risk-return ratio. It is therefore possible to highlight that the realization of investments in foreign markets or in less mature national geographic areas lead to a significant increase in the risk-return ratio.

2.2 Real estate funds performance

The theme of real estate vehicles performance has been widely dealt with at both International and European levels. The literature on performance assessment has been enhanced by a wide range of indicators whose purpose is to provide for a data of performance filtered by the risk component.

In the asset management industry, the Risk Adjusted Performance (RAP) measures are the best known instruments used in order to synthesize the profile of risk/return of an investment (Cucurachi, 1999).

Several studies in literature show the goodness of these measures in order to select the best investment opportunities (Plantinga and de Groot, 2001, Giannotti and Mattarocci, 2010).

The literature concerning the risk-adjusted performance measurement of this type of investments is based essentially on the standard mean-variance approach (Young and Graff, 1995). Most asset allocation analyses use the mean–variance approach in analyzing the trade-off between risk and return (Leland 1999; Sharpe 2007).

In particular, traditional RAP measures, such as the Sharpe ratio, the Treynor ratio or Jensen's Alpha, based on the mean-variance framework, are widely used to rank mutual funds (Plantinga and de Groot, 2001, Grau-Carles et al., 2009, Bacon , 2010).

The most widely known indicator is the Sharpe ratio, measures the relationship between the risk premium and the standard deviation of the returns generated by the fund, portfolio, or asset being measured (Sharpe, 1966).

Literature offers several empirical analysis concerning the comparison of performance measures, in particular among this latter and other alternative measures, as those proposed by Scholz and Wilkens 2005, Plantinga and de Groot, 2001, Eling 2008, Giannotti and Mattarocci, 2010, Grau-Carles et al., 2009.

Scholz and Wilkens (2005), present a system of basic risk-adjusted performance measures in order to understand the key differences between these performance measures and to clarify the links between them. In particular, they analyzed RAP measures based on total risk (Sharpe ratio and the total risk Alpha) and RAP measures based on market risk (Treynor ratio and Jensen Alpha). Their work also contains a study on the "market risk-adjusted performance" (MRAP) which measures the market risk-adjusted performance of funds in terms of basis points.

Plantinga and de Groot (2001), started from the assumption that RAP measures can be motivated by assuming that investors are risk adverse and need to be compensated for being exposed to risk, conducted an analysis on a sample of 253 U.S. mutual funds returns from Datastream in order to find the implicit risk preferences using risk-adjusted performance measures. The study revealed that each RAP measure can be associated with a different level of risk aversion; the Sharpe ratio, the Sharpe's alpha and the expected return measure correspond to the preferences of investors with a low degree of risk aversion, while the other measures such as the Sortino ratio, the Fouse index and the upside potential ratio correspond to the preferences of investors with intermediate and high degrees of risk aversion .

Eling (2008) conducted an analysis on dataset of 38.954 investment funds invested in seven asset classes over the period 1996–2005, studying whether alternative performance measures lead to different rankings than using the Sharpe ratio, and comparing the results.

The study revealed that performance measures such as Omega, Sortino ratio, Kappa, upside potential ratio, and other indexes, do not lead to significant changes in the ranking of investment funds compared to that obtained using the Sharpe ratio. These results show that, as in the case of hedge funds, the Sharpe ratio is adequate for analyzing mutual funds from both the practical and the theoretical points of view.

With reference to the Italian market, a similar work has been conducted by Giannotti and Mattarocci (2010) who have studied real estate funds performance in the Italian market over the period 1999-2009. The paper compares the ranking based on Sharpe ratio with those achieved using different RAP measures constructed using different risk measures.

The results show that the rankings obtained are not strictly correlated and that measures not assuming the normality of returns identify rakings with a higher degree of stability over time.

Finally Grau-Carles et al. (2009), compared the traditional risk-adjusted performance measures, such as the Sharpe ratio, the Treynor ratio or Jensen's alpha, with others using VaR to quantify risk exposure, empirically testing the suitability of each within a sample of 239 UK mutual funds over the period from 1995 to 2005 with the data provided by Morningstar. The results show that, regardless of the measure used except for the Jensen and Treynor measures, the ranking of performance measures have a high rank correlation. If the rankings from the modified Sharpe index, calculated with the Cornish-Fisher VaR and the extreme value theory, take into consideration, these are more accurate measures in presence of non-normal distribution, and these are both highly correlated and show a lower correlation with the other measures.

2.3   The impact of real estate portfolio composition choices on funds performance

The study of these performance indicators is fundamental, and it is used in many works. Looking at the Italian market Morri and Lee (2009) have focused their attention on Italian retail funds performance, identifying and analyzing funds characteristics. By estimating the relationship between Sharpe ratio and funds characteristics using ordinary least squares regressions, the research has highlighted that active property management, fund setup typology and Herfindahl Index for property typologies have a significant influence on the risk-adjusted performance.

The impact of real estate portfolio composition choices on funds performance has been studied at national level by Morri and Erbanni (2008), who have investigated on the relationships between composition choices and funds performance, analyzing risk and return profiles of an American REITs sample, calculating Sharpe and Treynor ratios. The analysis revealed the convenience for a financial investor to select a plurality of specialized property portfolios and to benefit from specific skills of several funds manager, and that more concentrated REITs have better returns, especially when focusing on property-types rather than on geographic areas.

Finally Baum and Steffan (2009) have demonstrated that the specialization by sector has a greater impact on the risk-adjusted performance than the specialization by geographical distribution.

3. Empirical Analysis

3.1 The Sample

The analysis has been conducted on a sample of 19 Italian retail funds, over the period 2006-2009; in particular this paper makes use of half-yearly data.

The choice of a time span of 3 years was influenced by the unavailability of detailed data before 2006.

In particular, annual and half-yearly data provided by "Report of Scenari Immobiliari" were used in order to collect information in detail on the geographical and sectorial distribution of property, as well as of financial reports of retail funds, in order to identify what are the typologies of investment in which the fund invests its asset under management.

In fact, this study focuses on the patrimonial aspects, analyzing the statement of assets and liabilities for each funds, trying to highlight the impact of residual and exclusive investment on asset under management.

The significance of the sample on the horizon of observation is of 78,31% of the Italian retail funds.

Finally, to build a sample it was necessary to make a distinction among the funds in terms of
- fund setup typology: blind pool funds and seeded funds
- the modality of distribution of proceeds to underwriters: income distribution and income accumulation funds, mixed.

SGR	FUNDS	FUND SETUP TYPOLOGY		MODE OF PROCEEDS DISTRIBUTION		
		BLIND POOL	SEED FUND	DISTRIBUTION	ACCUMULATION	MIXED
Aedes Bpm Real Estate	Investietico	BP		D		
Beni Stabili	Immobilium 2001	BP				M
Beni Stabili	Invest Real security (IRS)	BP		D		
Beni Stabili	Securfondo	BP				M
BNL	BNL Portafoglio Immobiliare	BP		D		
BNL	Estense grande distribuzione	BP		D		
BNL	Portafolio Immobil. Crescita	BP			A	
Caam Re Italia	Caam Re Italia	BP		D		
Fimit Sgr	Fondo Alpha		PB			M
Fimit Sgr	Fondo Beta		PB			M
First Atlantic	Atlantic 1		PR	D		
First Atlantic	Atlantic 2		PR	D		
Investire Immobiliare	Obelisco	BP		D		
Torre	UniCredito Immobiliare Uno	BP		D		
Pirelli	Olinda Fondo Shop		PR	D		
Pirelli	Tecla Fondo Uffici		PR	D		
Polis Fondi Immobiliari	Polis	BP			A	
Rreef Fondimmobiliari	Piramide Globale	BP			A	
Rreef Fondimmobiliari	Valore Immobiliare Globale	BP		D		
Sorgente	Caravaggio	BP				M

There is a prevalence of blind pool funds over those seeded funds; besides there is a prevalence of distribution funds compared to those presenting another modality of distribution (accumulation or mixed).

In the real estate investments properties have been considered in term of property-type and region, taking into account the individual Regions in which investments are concentrated.

3.2 Methodology

In order to investigate on the relationships between real estate portfolio composition choices and retail funds performance, it was necessary to calculate the Sharpe ratio, widely used for the assessment of real estate investment vehicles; subsequently a "multiple cross-section analysis" was made among the Sharpe ratio and the variables examined, in order to assess which variables most impact on fund performance and to study the trend of the individual estimated coefficients to verify if the weight of several variables changed in the period 2006-2009.

To build the Sharpe ratio, we started from the analysis of risk and return profile of funds held in the portfolio, taking into account the half-yearly average return and risk measured in terms of standard deviation of half-yearly returns.

The half-yearly average return of funds was calculated considering the return for each trading day built up with the logarithm of the ratio between the current closing price plus dividends eventually paid and the closing price in the previous trading day. In formulas:

$$_{t-1}R_t = \ln\left(\frac{P_t + D_t}{P_{t-1}}\right)$$

where:

- ln is the natural logarithm.
- P_t is the closing price at time t,
- D_t is the dividend eventually paid at time t
- P_{t-1} is the closing price at time t-1,

Defined the daily returns, it was possible to calculate average returns among daily returns within the half-year and their respective standard deviation, in this way obtaining the half-yearly Sharpe ratio for each fund.

$$S_i = \frac{R_i - R_f}{\sigma_i}$$

Where

R_i represents the half-yearly average return on a fund,

R_f is the risk-free rate

σ_i is the standard deviation of the fund.

Therefore, the numerator $R_i - R_f$ represents the extra-return of the real estate fund respect to the risk free rate while the denominator given from standard deviation, measures the total risk.

Coherently with the literature, the risk free rate was calculated as the average of rate of return of Italian Treasury Bills with a time horizon coherent with the period of time considered for the RAP measure.

In the light of the literature taken into consideration, it has drawn on Morri and Lee's work (2009), it was possible to study the relationships of Sharpe ratio versus a set of variables:

$$\text{Sharpe}_i = \beta_0 + \beta_1 \text{Age}_i + \beta_2 \text{IDR}_i + \beta_3 \text{HFDS}_i + \beta_4 \text{HFDR}_i + \beta_5 \text{IM}_i + \beta_6 \text{VML}_i + \beta_7 \text{SF}_i + \beta_8 \text{Fao}_i + \beta_9 \text{Fda}_i + \varepsilon_i$$

where:

Age_i = number of half-yearly since inception of fund i at time t,

IDR_i = value of properties investment and property right considered, given by the ratio between the value of the properties and total assets

HFDS_i = fund Herfindahl-Hirschman index for property-typologies (9 typologies, according to "Scenari Immobiliari"

HFDR_i = fund Herfindahl-Hirschman index for property locations (21 regions, according to "Scenari Immobiliari"

IM_i = average property investment determined by the ratio between AUM and the number of properties held directly by the fund

VML_i = value of liquidity and bonds given by the ratio between the value of liquidity and bonds and total assets

SF_i = value of financial instruments given by the ratio between the value of share and total assets

Two dummy variables were used:

Fao_i = fund setup typology (0 seed fund, 1 blind pool fund).

Fda_i = modality of distribution of proceeds to underwriters (0 other modality of distribution of proceeds, 1 income distribution fund)

This model, compared to Morri and Lee's work, adds the variables of:

- the properties investment and property right (IDR), and average property investment (IM),

-and considers also the residual investment components: the value of liquidity and bonds (VML), and financial instruments (SF) .

3.3 Results

3.3.1 The investment policies and the composition choices of Italian retail funds portfolio

The results emerged from the analysis over the period 2006-2009 show a variation in the investment and in the composition choices of the real estate portfolio examined over the years. In order to conduct the analysis the attention is focused, as previously mentioned, on fund setup typology: blind pool funds and seeded funds, in order to find significant differences and analogies in terms of investment and of composition choices.

As you can see from the charts below, with regard to exclusive investment represented by properties investment and property right, blind pool funds have average a lower share of properties in the portfolio (84,54%) than seeded funds (89.31%).

Table 1- Properties investment and property right of blind pool and seeded funds (time horizon 2006-2009)

IDR	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Investietico	79,24	89,01	89,43	94,51	94,75	95	93,03
Immobilium 2001	94,01	85,52	63,59	83,35	82,71	84,26	83,79
Invest Real security (IRS)	87,42	84,84	87,22	98,46	96,24	98,28	96,47
Securfondo	80,85	82,86	78,77	77,55	83,99	87,4	81,8
BNL Portafolio Immobiliare	75,35	79,16	74,31	75,42	74,48	74,59	68,73
Estense grande distribuzione	88,4	94,28	94,24	96,65	95,13	96,64	95,79
Caam Re Italia	81,51	88,07	87,34	78,08	83,9	81,54	89,78
Obelisco	84,3	88,79	87,53	90,96	91,39	85,18	88,63
UniCredito Immobiliare Uno	82,81	78,42	74	74	73,97	74,62	71,06
Polis	77,78	77,56	86,54	79,45	87,9	90,89	89,4
Piramide Globale	85,7	72,33	75,2	50,91	75,63	84,93	83,17
Valore Immobiliare Globale	89,61	93,28	92,03	96,73	91,97	91,04	93,81
Caravaggio	77,28	79,83	81,22	82,3	83,37	84,22	85,77
MEAN BPF	83,40	84,15	82,42	82,95	85,80	86,81	86,25
Fondo Alpha	92,72	94,13	90,79	89,59	90,95	90,22	88,49
Fondo Beta	62,49	80,36	71,88	45,98	64,68	76,62	78,49
Atlantic 1	96,37	96,52	96,86	96,64	96,7	96,48	95,52
Atlantic 2	92,98	94,63	98,14	98,89	88,63	97,18	91,21
Olinda Fondo Shop	97,36	80,29	91,82	91,55	93,66	92,58	87,5
Tecla Fondo Uffici	91,57	92,32	93,03	93,59	97,55	97,58	96,43
MEAN SF	88,92	89,71	90,42	86,04	88,70	91,78	89,61

Source: Scenari Immobiliari data processed by the author

Through an analysis of the retail funds composition in the sample, with reference to target use, it is clear that most retail funds are oriented towards specialization rather than diversification, as most funds invest mainly in properties used for "office" and "retail",

while funds investing in other categories (nursing homes, hospitality, logistic, residential , other and industrial) do not exceed 7%.

The investment in office saw a slight decline from December 2006 (39,11%) to June 2009 (34.29%) while investment in retail properties underwent an increase from 34.22% to 39.9%.

These investments can be further shared out between the 2 typologies as shown in the following chart: in the office sector the seeded funds carry the highest investment even with a gradual disinvestment, while in the retail sector a reverse trend is quite evident.

In the nursing homes compartment, seeded funds present no investments, while they increase their investments in the hospitality during the period 2006-2009 until they reach to 9.68%, compared to the blind pool funds reducing their investment in the same sector.

In residential, the investment is slightly higher for the blind pool funds which show no share of assets invested in "Other".

Table 2- Average Asset allocation for property typologies of blind pool and seeded funds (time horizon 2006-2009)

		12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
OFFICES	BPF	39,11	37,13	34,94	32,37	33,85	34,29	37,6
	SF	75,73	64,1	62,47	61,75	62,87	61,73	56,94
RETAIL	BPF	34,22	35,65	38,11	40,89	40,62	39,9	38,61
	SF	11,3	18,95	19,06	19,3	21,3	19,12	20,99
MIXED	BPF	9,22	9,12	7,76	8,27	8,36	8,55	8,15
	SF	8,2	8,1	8,18	8,34	6,12	6,8	7,12
NURSING HOMES	BPF	6,83	6,55	5,77	7,29	6,57	6,52	6,23
	SF	0	0	0	0	0	0	0
HOSPITALITY	BPF	5,02	5,44	6,61	3,28	3,28	3,4	3,06
	SF	0	2,63	3	4,12	4,75	4,82	9,68
LOGISTIC	BPF	2,96	4,02	4,7	5,82	5,5	5,29	5,55
	SF	1,83	1,78	1,72	1,67	1,57	1,42	1,44
RESIDENTIAL	BPF	2,61	2,07	2,07	2,05	2,05	2,02	1,97
	SF	0,01	1,57	2,63	1,67	0,01	2,84	0,01
OTHER	BPF	0	0	0	0	0	0	0
	SF	2,34	2,3	2,31	2,3	2,71	2,62	3,12
INDUSTRIAL	BPF	0	0	0	0	0	0	0
	SF	0,61	0,59	0,64	0,86	0,69	0,67	0,72

Source: Scenari Immobiliari data processed by the author

With regard to asset allocation for property locations, for macro-area it has been noted how funds are specialized as they invest primarily in Northwest and Central areas rather than in the South and in the Islands.

Table 3- Average Asset allocation for property locations (macro-area) of retail funds (time horizon 2006-2009)

	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
NORTH WEST	43,83	34,11	41,77	45,7	46,71	47,78	46,32
NORTH EAST	12,98	13,18	13,34	13,26	13,26	12,97	12,48
CENTRE	35,35	35,14	35,48	30,36	29,51	29,3	29,56
SOUTH	5,96	5,88	6,45	9,07	7,44	7,7	7,28
ISLANDS	1,72	2,65	2,93	2,89	3,07	3,05	3,9

Source: Scenari Immobiliari data processed by the author

The analysis, which has been conducted with particular reference to regions, shows how fund investments are concentrated in Lombardy for the Northwest, in Emilia Romagna for the Northeast, while there is a prevalence of investments in Lazio for the Central area.

A further analysis, allocates the distribution of investments in different regions from both the blind pool and seeded fund points of view.

The analysis shows how in the two northern regions where most investment are concentrated blind pool funds are prevailing, whereas the seeded funds dominate in Centre area. In particular they represent a larger investment in Lombardy (42.20%), although decreasing over time, and much larger investments are also found in Emilia Romagna.

In relation to Lazio, where there are relevant investments, the seeded funds hold a larger share (40.68%), although decreasing over the years 2006-2009, compared to blind pool funds holding a percentage of 23.68%.

Table 4- Average asset allocation for properties locations (Regions) of blind pool and seeded funds (time horizon 2006-2009)

		12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Valle d'Aosta	BPF	0	0	0	0	0	0	0
	SF	0	0	0	0	0	0	0
Piedmont	BPF	2,73	3,55	3,47	3,47	3,11	3,07	2,83
	SF	6,39	7,29	8,34	8,5	8,74	8,87	9,91
Lombardy	BPF	43,7	40,23	37,96	43,55	44,49	44,61	40,82
	SF	31,27	32,46	31,84	38,37	32,7	33,09	31,34
Liguria	BPF	0,8	0,73	0,79	0,79	1,02	1,05	1,15
	SF	0,34	0,39	0,62	0,65	0,67	0,57	0,41
Emilia Romagna	BPF	13,78	12,43	12,21	11,84	12,22	11,94	11
	SF	1,64	1,97	2,04	2,13	2,05	2,13	2,21
Veneto	BPF	1,84	1,69	2,07	2,72	2,18	2,29	2,55
	SF	0,95	1,11	1,45	0,71	1,03	0,62	0,76
Trentino Alto Adige	BPF	0	0	0	0	0	0	0
	SF	0	0	0	0	0	0	0
Friuli Venezia Giulia	BPF	0,43	2,93	2,89	3,54	3,08	2,75	2,53
	SF	5,15	1,72	1,53	3,17	1,57	1,5	1,69
Tuscan	BPF	2,8	2,97	4,24	1,19	0,91	0,92	0,9
	SF	0,35	0,37	0,27	0,23	0,29	0	1,15
Marche	BPF	0,06	0,05	0,05	0,07	0,07	0,07	0,06
	SF	0,76	1	0,96	0,98	0,99	0,82	1
Umbria	BPF	1,06	1,08	1,33	1,15	1,14	1,09	1,11
	SF	2,56	2,26	2,5	2,81	3,5	3,62	0,43
Lazio	BPF	23,49	25,74	27,51	20,18	23,05	22,81	23,03
	SF	45,3	42,99	41,4	40,47	37,96	39,2	37,46
Molise	BPF	0	0	0	0	0	0	0
	SF	0,13	0,15	0,14	0,13	0,14	0,1	0,09
Abruzzo	BPF	1,21	1,04	0,96	1,31	1,19	1,04	0,93
	SF	0	0	0	0	0	0	0
Campania	BPF	0,61	0,55	0,56	0,59	0,56	1,06	1,07
	SF	3,68	4,34	4,43	4,31	4,15	4,14	4,26
Puglia	BPF	5,29	4,83	5,7	7,32	7,05	6,92	6,53
	SF	0,12	0,23	0,23	0,17	0,18	0,19	0,19
Basilicata	BPF	0	0	0	0	0	0	0
	SF	0	0	0	0	0	0	0
Calabria	BPF	0	0	0	0	0	0	0
	SF	0	0	0	0	0	0	0
Sicily	BPF	0,85	1,02	1,09	0,26	0,24	0,24	0,22
	SF	1,02	0,76	0,84	0,87	0,9	0,92	0,74
Sardinia	BPF	1,29	1,1	1,22	1,46	1,42	1,54	0,09
	SF	0,35	3,04	3,43	4,55	5,22	5,29	8,41

Source: Scenari Immobiliari data processed by the author

The real estate portfolio being analyzed was further assessed considering the degree of concentration, by calculating the Herfindahl index for property-typologies and property locations of each individual fund making up the portfolio.

These indices show, respectively, over the period 2006-2009, average concentrations ranging from 53 to 68 for the Herfindahl for property-typologies and from 40 to 46 for property locations.

Considering that for values above 18 the Herfindahl index indicates a high degree of concentration, in this case the portfolio is highly concentrated at both sectorial and geographical level.

In particular Herfindahl for property-type is higher for the seeded funds having a higher concentration between 60-65, compared to blind pool funds having an average value between 51-56, except two funds: Estense Grande Distribuzione and Obelisco which throughout the time span reach share 100 as they invest totally in the single sector "retail" and for the last 4 semesters taken into consideration Piramide Globale invests in the same compartment as well.

Table 5- Herfindahl index for property-typologies of blind pool and seeded funds (time horizon 2006-2009)

HFDS	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Investietico	50,897	50,105	42,852	44,195	42,362	42,471	42,637
Immobilium 2001	74,192	72,284	66,519	54,829	54,78	55,313	55,584
Invest Real security (IRS)	43,188	40,567	40,504	36,016	35,27	34,375	33,343
Securfondo	40,517	43,598	41,949	39,572	37,831	35,572	37,871
BNL Portafolio Immobiliare	41,335	41,575	47,505	47,308	46,447	45,945	47,225
Estense grande distribuzione	100	100	100	100	100	100	100
Caam Re Italia	43,317	45,904	45,32	34,397	36,57	38,959	46,517
Obelisco	100	100	100	100	100	100	100
UniCredito Immobiliare Uno	35,14	39,647	39,639	42,629	35,497	45,077	43,99
Polis	75,403	46,009	40,131	35,981	45,349	45,266	46,36
Piramide Globale	26,986	27,226	50,049	100	100	100	100
Valore Immobiliare Globale	37,594	37,42	37,735	38,011	41,332	47,915	48,001
Caravaggio	27,357	27,362	27,37	27,546	27,634	27,799	28,539
MEAN BPF	53,533	51,669	52,275	53,883	54,082	55,284	56,159
Fondo Alpha	73,08	66,848	66,837	75,12	76,397	70,456	62,385
Fondo Beta	96,948	63,688	53,449	48,324	57,309	43,013	49,496
Atlantic 1	53,612	63,791	64,183	64,193	64,321	64,289	64,927
Atlantic 2	40,138	40,407	40,166	38,889	44,726	44,607	39,376
Olinda Fondo Shop	62,201	74,081	75,819	77,9	98,826	77,084	99,282
Tecla Fondo Uffici	66,718	67,56	66,95	65,742	68,838	65,007	66,94
MEAN SF	65,450	62,729	61,234	61,695	68,403	60,743	63,734

Source: Scenari Immobiliari data processed by the author

Even in terms of geography there is a highly concentrated portfolio albeit lower than the sector, as the geographic Herfindahl index is around the 42-43 units for both types of funds, resulting slightly higher for the blind pool funds in the last 4 semesters analyzed. Only funds Olinda Fondo Shops and Tecla Fondo Uffici show a lower concentration around 20-30.

Table 6- Herfindahl index for property locations of blind pool and seeded funds (time horizon 2006-2009)

HFDR	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Investietico	60,233	61,298	60,93	63,742	65,506	65,13	65,418
Immobilium 2001	28,626	29,503	23,46	32,614	19,158	19,33	19,864
Invest Real security (IRS)	25,207	24,641	24,646	28,09	25,123	24,991	22,999
Securfondo	21,833	21,46	21,575	23,187	23,011	21,709	27,119
BNL Portafolio Immobiliare	26,953	27,872	26,703	26,646	28,133	28,094	29,386
Estense grande distribuzione	50,585	45,207	40,898	37,629	36,787	33,325	100
Caam Re Italia	42,49	45,108	66,504	33,063	34,838	32,386	21,709
Obelisco	61,628	61,679	61,01	61,674	62,55	59,041	59,645
UniCredito Immobiliare Uno	35,914	35,765	35,773	43,01	43,323	43,677	20,572
Polis	34,09	41,838	22,786	23,989	35,955	36,252	36,726
Piramide Globale	48,649	40,591	34,465	100	100	100	100
Valore Immobiliare Globale	79,077	78,728	78,44	77,99	76,513	74,402	74,318
Caravaggio	31,466	31,656	31,646	15,626	31,795	32,091	32,141
MEAN BPF	**42,058**	**41,950**	**40,680**	**43,635**	**44,822**	**43,879**	**46,915**
Fondo Alpha	62,934	64,324	65,314	63,816	66,613	67,544	68,237
Fondo Beta	61,314	47,977	43,971	41,556	36,396	37,464	41,615
Atlantic 1	43,5	47,308	44,287	44,497	45,686	46,05	46,296
Atlantic 2	38,851	39,492	39,506	39,601	37,388	37,785	36,156
Olinda Fondo Shop	20,604	28,68	28,067	29,683	30,236	31,6	27,45
Tecla Fondo Uffici	30,549	26,195	23,927	25,428	24,279	25,279	26,467
MEAN SF	**42,959**	**42,329**	**40,845**	**40,764**	**40,100**	**40,954**	**41,037**

Source: Scenari Immobiliari data processed by the author

The analysis on investment policies of the real estate funds, may be completed by examining the residual investment in which a fund invests its asset under management, as in our sample there are some funds which have in their portfolio investments in liquidity and bonds and in financial instruments.

As shown in Tables 7-8, both types of funds have the similar values of 4.61% for the blind pool funds and 4.89% for the seeded funds, while in the financial instruments there is a sharp difference between the blind pool funds recording an average investment of 6.05% and the seeded with 1.58%.

With reference to financial instruments the blind pool funds have seen a decline of investments since December 2006, from 7.06% to only 5.33%, whereas the seeded funds have always remained on 1% reaching a peak of 3.03% in December 2008.

Table 7- Investments in liquidity and bonds of blind pool and seeded funds (time horizon 2006-2009)

VML	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Investietico	17,01	4,21	8,68	3,65	4,48	4	5,02
Immobilium 2001	3,28	11,89	5,41	13,26	4,73	0,73	2,13
Invest Real security (IRS)	2,73	13,36	2,18	0,25	2,39	0,44	2,44
Securfondo	5,56	0,98	3,24	6,38	5,53	1,89	4,26
BNL Portafolio Immobiliare	0,51	1,18	1,07	2,3	0,75	0,79	0,81
Estense grande distribuzione	0,43	0,58	0,46	0,93	0,74	1,45	1,28
Caam Re Italia	1,38	5,98	9,12	17,5	1,57	2,23	2,5
Obelisco	7,88	10,21	4,25	8,45	7,98	5,77	10,36
UniCredito Immobiliare Uno	6,05	0,87	0,47	0,23	0,13	1,01	2
Polis	1,55	1,78	7,12	10,65	3,56	0,81	1,56
Piramide Globale	0,06	23,47	0,27	32,37	20,34	10,97	12,67
Valore Immobiliare Globale	0,15	0,35	1,18	1,52	5,84	5,84	3,25
Caravaggio	5,48	2,07	2,53	1,51	1,28	0,44	1,58
MEAN BPF	4,01	5,92	3,54	7,62	4,56	2,80	3,84
Fondo Alpha	0,81	0,56	0,06	0,09	0,07	1,02	2,71
Fondo Beta	28,18	5,48	9,79	37,38	9,39	3,17	2,61
Atlantic 1	0,2	0,25	0,25	0,75	0,29	0,8	1,11
Atlantic 2	5,33	3,53	0,56	0,35	10,31	1,3	7,49
Olinda Fondo Shop	0,9	5,3	5,26	6,89	5,35	6,56	11,55
Tecla Fondo Uffici	7,05	6,46	5,95	5,12	0,97	1,31	2,66
MEAN SF	7,08	3,60	3,65	8,43	4,40	2,36	4,69

Table 8- Investments in financial instruments of blind pool and seeded funds (time horizon 2006-2009)

SF (Financial instruments)	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Investietico	0	0	0	0	0	0	0
Immobilium 2001	0	0	0	0	0	0	0
Invest Real security (IRS)	0,26	0,27	0,27	0,29	0,28	0,31	0,31
Securfondo	11,48	15,03	12,46	15,11	9,65	9,81	7,89
BNL Portafolio Immobiliare	22,35	14,45	19,25	17,09	19,36	16,7	23,05
Estense grande distribuzione	10,33	3,01	3,74	1,27	2,59	0,66	1,44
Caam Re Italia	1,52	0,99	2,42	2,67	7,75	7,62	1,43
Obelisco	0	0	0	0	0	0	0
UniCredito Immobiliare Uno	8,72	18,88	23,43	23,44	23,68	21,4	23,77
Polis	13,53	0	2,55	0	0	0	0
Piramide Globale	13,56	3,58	23,01	13,33	1,64	1,86	1,89
Valore Immobiliare Globale	2,87	2,08	4,98	0	0,01	0,23	0,16
Caravaggio	7,18	7,51	8,13	8,52	8,7	9,05	9,41
MEAN BPF	7,06	5,06	7,71	6,29	5,67	5,20	5,33
Fondo Alpha	1,3	1,48	2,97	2,83	2,06	1,72	1,45
Fondo Beta	1,57	4,25	6,46	3,26	13,95	3,79	3,48
Atlantic 1	1,78	1,67	1,37	0,86	1,4	0,92	1,62
Atlantic 2	0	0	0	0	0	0	0
Olinda Fondo Shop	0,65	0,55	0,53	0,46	0,38	0,3	0,24
Tecla Fondo Uffici	0,79	0,53	0,47	0,41	0,36	0,27	0,24
MEAN SF	1,02	1,41	1,97	1,30	3,03	1,17	1,17

Source: Scenari Immobiliari data processed by the author

3.3.2 The impact of real estate portfolio composition choices on funds performance

In order to investigate the impact of composition choices on fund performance, it was necessary to study the relationship between the Sharpe ratio and the variables described above.

Even in this case the differences between the two types of funds were highlighted, (see Tab. 9) as Sharpe ratios show a rising trend in the period 2006-2009 and they are slightly higher for blind pool funds than for the seeded funds. A higher Sharpe ratio correspond to a better performance in relation to the unit of risk.

Table 9- Sharpe ratio of blind pool and seeded funds (time horizon 2006-2009)

Sharpe Ratio	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Investietico	5,54	6,45	6,66	6,58	7,02	7,1	7,25
Immobilium 2001	5,79	7,18	7,42	7,35	6,42	8,02	8,03
Invest Real security (IRS)	5,87	6,76	6,72	6,3	7,08	6,88	6,94
securfondo	3,96	6,75	4,48	6,92	7,27	7,48	7,5
BNL Portafolio Immobiliare	5,86	6,47	6,63	6,72	7,25	7,26	7,29
Estense grande distribuzione	5,79	6,22	6,17	6,64	7,19	7,33	7,48
Caam Re Italia	6,15	6,5	6,46	6,64	7,19	7,11	7,09
Obelisco	6,46	5,88	1,24	7,19	6,57	6,76	6,85
UniCredito Immobiliare Uno	6,77	6,64	6,33	6,94	7,19	7,2	7,43
Polis	6,64	6,42	6,14	6,48	6,85	6,9	7,02
Piramide Globale	6,15	6,63	7,25	6,88	5,83	5,6	5,51
Valore Immobiliare Globale	6,52	6,77	7,17	6,58	7,85	7,95	8,05
Caravaggio	5,97	6,06	6,56	6,48	7,38	7,38	7,42
MEAN BPF	5,96	6,52	6,09	6,75	7,01	7,15	7,22
Fondo Alpha	6,26	4,16	7,42	6,92	7,57	7,35	7,57
Fondo Beta	5,79	5,68	6,23	6,09	6,6	6,18	6,2
Atlantic 1	3,7	4,6	5,26	5,04	5,6	5,75	5,89
Atlantic 2	5,11	5,83	6,25	5,34	5,91	5,92	5,74
Olinda Fondo Shop	4,69	5,4	5,83	5,35	5,66	5,57	5,59
Tecla Fondo Uffici	4,85	5,68	6,00	5,55	5,82	5,81	5,82
MEAN SF	5,07	5,23	6,17	5,72	6,19	6,10	6,14

Source: Scenari Immobiliari data processed by the author

The main descriptive statistics of the variables studied in the period 2006-2009 are reported in Tables 10,11, 12, 13 (minimum, maximum, average and standard deviation).

Table 10 - Descriptive statistics- Minimum retail funds (time horizon 2006-2009)

Min	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Sharpe	3,70	4,16	1,24	5,04	5,60	5,57	5,51
Age	1,17	2,17	3,17	4,17	5,17	6,17	7,17
IDR	62,49	72,33	63,59	45,98	64,68	74,59	68,73
HFDS	26,99	27,23	27,37	27,55	27,63	27,80	28,54
HFDR	20,6	21,46	21,58	15,63	19,16	19,33	19,86
IM	7,32	9,59	11,32	13,13	12,46	13,31	13,52
VML	0,06	0,25	0,06	0,09	0,07	0,44	0,81
SF	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Fao	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Fda	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 11 - Descriptive statistics- Maximum retail funds (time horizon 2006-2009)

Max	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Sharpe	6,77	7,18	7,42	7,35	7,85	8,02	8,05
Age	15,75	16,75	17,75	18,75	19,75	20,75	21,75
IDR	97,36	96,52	98,14	98,89	97,55	98,28	96,47
HFDS	100	100	100	100	100	100	100
HFDR	79,08	78,73	78,44	100	100	100	100
IM	33,93	34,21	42,66	47,00	47,00	46,50	46,10
VML	28,18	23,47	9,79	37,38	20,34	10,97	12,67
SF	22,35	18,88	23,43	23,44	23,68	21,4	23,77
Fao	1	1	1	1	1	1	1
Fda	1	1	1	1	1	1	1

Table 12 - Descriptive statistics- Mean retail funds (time horizon 2006-2009)

Mean	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Sharpe	5,6774	6,1095	6,1168	6,4205	6,7500	6,8184	6,8774
Age	8,7702	9,7702	10,7702	11,7702	12,7702	13,7702	14,7702
IDR	85,1447	85,9053	84,9442	83,9268	86,7158	88,3816	87,3089
HFDS	57,2959	55,1617	55,1041	56,3501	58,6047	57,0078	58,5512
HFDR	42,3423	42,0696	40,7320	42,7285	43,3311	42,9953	45,0588
IM	20,2205	21,1132	21,5042	22,0995	21,8979	21,9400	21,7116
VML	4,9758	5,1847	3,5711	7,8726	4,5105	2,6595	4,1047
SF	5,1521	3,9095	5,8968	4,7126	4,8321	3,9284	4,0200
Fao	0,6842	0,6842	0,6842	0,6842	0,6842	0,6842	0,6842
Fda	0,6316	0,6316	0,6316	0,6316	0,6316	0,6316	0,6316

Table 13 - Descriptive statistics- Standard deviation retail funds (time horizon 2006-2009)

Std dvt	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
Sharpe	0,85904	0,76593	1,38239	0,657407	0,69377	0,78019	0,82616
Age	4,54185	4,54185	4,54185	4,54185	4,54185	4,54185	4,54185
IDR	8,65334	7,11010	9,56358	15,03037	9,21061	7,79644	8,02616
HFDS	23,76809	21,29460	20,31226	23,83926	25,01309	22,90761	23,99004
HFDR	16,54159	15,54765	17,58528	21,62134	21,34528	21,11739	25,68618
IM	6,64102	6,89586	7,93678	8,04912	8,23519	8,08947	7,82773
VML	6,97332	5,96934	3,31858	10,73329	4,97611	2,80271	3,66342
SF	6,44288	5,81207	7,86626	7,17521	7,19316	6,24594	7,32133
Fao	0,47757	0,47757	0,47757	0,47757	0,47757	0,47757	0,47757
Fda	0,49559	0,49559	0,49559	0,49559	0,49559	0,49559	0,49559

Source: Scenari Immobiliari data processed by the author

The performance of the funds examined in the period 2006-2009, as measured by Sharpe, shows an upward trend, starting from December 2006, with a minimum performance of 3.70% up to a 5.60% in December 2008, obtained from fund Atlantic 1, with the exception of the second half of 2007, in which it was recorded the minimum achieved in three years with a performance of 1, 24% of Obelisco fund.

With regard to the maximum performance of the funds, which is also growing over the years, in December 2006 UniCredito Immobiliare Uno achieved 6.77%, reaching a peak of 8.05% of Valore Immobiliare Globale in the second half of 2009.

Obviously, this trend affects the average performance of funds which stands at 5-6% over the period and also on the volatility (dispersion) of returns around the expected value, as measured by standard deviation, which is low.

Among the variables studied, the first subject to an analysis is the age of the funds showing an upward trend in the period 2006-2009; there are some funds that have a minimum age of 1.17 semester in 2006 as the Atlantic 1 and a maximum of 21.75 at the end of 2009 represented by the Valore Immobiliare Globale fund; the average age is 8.77 semesters in December 2006 and 14.77 semesters in December 2009.

The incidence of exclusive component represented by the investment in properties and property rights in the portfolio is of great importance: the minimum investment in the

portfolio is of 62.49% of the fund Beta in the first semester examined and of 68.73% of the fund BNL Portafoglio Immobiliare in December 2009.

The maximum investment in this portfolio has a constant trend, around 97-98% during the period of time considered; there is a slight decrease in June 2007 with 96.52% of Atlantic 1 and one in December 2009 with a 96.47% of Invest Real Security. The average incidence is steady on 85%, and volatility remains rather low.

Were taking into account the sectorial and geographical concentration indexes, these indexes show, respectively, over the period 2006-2009 an average concentration of about 56 for Herfindahl for property-type and 42 for the property locations.

In this case the volatility is high both for the sectorial concentration index that the geographical as there is a big gap between funds on the degree of concentration of the portfolio, for instance, in December 2006 there is funds as the Piramide Globale that beginning diversified the portfolio at sectors and geographical level, by presenting in the first half-yearly a minimum value of 26.99 and then focusing all of the asset under management in a single sector "retail" and region "Lombardy" recording a maximum of 100 in the last 4 semesters.

The average investment property presents an upward trend over time, and has an average of about 21.50%.

With regard to the residual component represented by liquidity and bonds and financial instruments, we can see that liquidity and bonds has lower incidence in the real estate portfolio. The minimum investment does not touch even 1% between 2006-2009, while the highest percentage invested in these values has a highly variable trend, starting from 9.79% in late 2007, a 37.38% in June 2008 by the Beta fund.

So the average retail funds take into account in the sample invest about 4.70% in liquidity and bonds, and financial instruments. Regarding the latter, the maximum investment reaches 23.77% in December 2009 by the fund Unicredito Immobiliare Uno.

In addition to complete the analysis was considered appropriate, as previously mentioned, the types of funds in relation to fund setup typology and modality of distribution of proceeds to underwriters of the same funds.

Tables also can be seen a preponderance of blind pool funds (0.69%) than those seeded, and a prevalence of income distribution funds (0.63%) than those income accumulation or distribution in mixed .

After this examination of the trends of the variables under study, it was tested for the presence of correlations between variables, so regressions using the 2-tailed test were launched. The results in the tables show that there are correlations between variables, for both 0.05 and 0.01 at the level .

Table 14- Correlations (time horizon 2006-2009)

Correlations	12/31/06	06/30/07	12/31/07	06/30/08	12/31/08	06/30/09	12/31/09
Age - Sharpe	0,487*	0,535*	0,527*	0,621**	0,635**	0,569*	0,561*
Fao – Age	0,523*	0,531*	0,536*	0,538*	0,540**	0,540**	0,541*
IM –HFDR				0,549*	0,574*	0,596**	
IM-Sharpe	0,536*						
SF-IM			0,532*				
VML –HFDS						0,551*	0,598**
VML –HFDR					0,547*	0,725**	
Fao – IM	0,521*	0,520*	0,463*				
HFDR –HFDS				0,473*			0,564*
SF – Age	0,484*		0,529*	0,485*			
Fda-IDR			0,546*	,0584**	0,460*		
HFDS –Sharpe			-0,484*		-0,475*		
HFDS –Age		-0,469*					
Fda –VML				-0,486*			
VML – Sharpe							-0,551*
Fao – Sharpe	0,496*	0,806**		0,749**	0,560*	0,646**	0,627**
SF – IDR			-0,558*	-0,522*	-0,744**	-0,744**	-0,826**
VML – IDR	-0,648**			-0,847**			
VML – IM	-0,587**		-0,586**				

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Source: Scenari Immobiliari data processed by the author

In the table above, the highlighted correlations persist throughout the period studied keeping the same sign and varying in intensity and significance of the p value from 0.05 to 0.01.

Overall, there are correlations between the variables indicating the age of the fund and performance indicator (Age-Sharpe), between the variables expressing the two types of fund and the age (Fao-Age), between the fund setup typology and Sharpe (Fao-Sharpe), between the variables representing the investments in financial instruments and properties and property rights (SF-IDR).

In particular, at the 0.05 level are found positive correlations of high intensity between: the variables Fao and age, age of fund and Sharpe, average property investment and Sharpe (IM-Sharpe), these last two are directly related to performance, other medium intensity such as those between investments in financial instruments and age (SF-Age), and those between the Herfindahl index for property locations and Herfindahl index for property-type (HFDR-HFDS).

The results show also negative correlations between variables: HFDS and Age, HFDS and Sharpe, and finally between the variable that explain the investment in "liquidity and bonds" and Sharpe ratio (VML-Sharpe), indicating in particular that there is an inverse relationship between these latter and performance.

Even at 0.01 level are found positive correlations only of high intensity between the variables Fao and Sharpe indicating how fund performance improve in relation to fund setup typology. There are negative correlations between the components of residual and exclusive investment indicating an inverse relationship between the variables expressing the investment in properties and property rights and the variables related to investment in liquidity and bonds (VML-IDR), and financial instruments (SF-IDR).

In order to evaluate the impact of variables on performance index, the regression for each half-year considered was launched. The table below shows R^2 found and the trend of the estimated coefficients.

High R^2 highlight the soundness of the model that is confirmed by Significance.

In order to know the importance of each independent variable while predicting the dependent variable, it was appropriate to examine the regression coefficients, in particular the standardized coefficients through which we can quantify the change occurring in a dependent variable as a result of the change of one standard deviation in the value of independent variables, while the other variables remain constant.

Beta factors are constant during the period 2006-2009, even though some negative coefficients, indicating a negative relation with the Sharpe ratio.

The following table shows that the estimated coefficients highlighted in red are significant, especially in the first three semesters i.e.: the variables that expressing the age, properties investment and property right, the Herfindahl index for property-typologies, average property investment, the variable financial instruments and the variable that synthesizing

seeded and blind pool funds, with beta respectively equal to a 0.566 and 0.871for age, -0.777 properties investment and property right, 0.391 for Herfindahl index for property-typologies, 0.821 and -0.425 for average property investment, -0.641 and -0.688 for investment in financial instruments, 0.816, - 0.672, 0.708, 0.441, 0.523 and 0.5 for the dummy that expressing seeded and blind pool funds . These variables have a significant impact on fund performance.

Table 15- R^2 and Beta Factor (time horizon 2006-2009)

Sharpe	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
R^2	0,812	0,873	0,671	0,787	0,714	0,737	0,683
Sig	0,020	0,004	0,152	0,032	0,095	0,070	0,134
R^2 adj	0,624	0,747	0,342	0,574	0,428	0,474	0,366
Beta							
In_Age	0,566	0,228	0,871	0,198	0,25	0,384	0,183
IDR	-0,777	0,022	-0,338	-0,706	-0,051	-0,367	-0,207
HFDS	0,391	-0,253	-0,295	0,285	-0,19	0,019	-0,057
HFDR	-0,022	-0,172	-0,174	0,194	0,399	0,201	0,142
In_IM	0,821	-0,425	0,475	-0,18	-0,089	-0,079	-0,12
VML	-0,294	0,278	-0,157	-0,659	-0,575	-0,685	-0,495
SF	-0,641	-0,023	-0,668	-0,234	0,062	-0,434	-0,204
Fao	-0,139	0,816	-0,672	0,708	0,343	0,523	0,5
Fda	0,127	0,246	0,116	-0,238	-0,134	0,088	0,021

Source: Scenari Immobiliari data processed by the author

In order to assess the soundness of the results some inferential tests have been carried out, verifying that the model is not affected by problems of multicollinearity, through the calculation of the variance inflation factor (VIF) and the condition indexes.

The analysis has revealed the presence of the multicollinearity, because the values found in the VIF are high (over 4) and in the condition index for several variables.

As shown in the table below the VIF are normal, and do not highlight the risks of multicollinearity of the variables except for properties investment and property right (IDR), liquidity and bonds (VML) and financial instrument (SF) that exceed the thresholds value specified in the literature (3 and 4), which lead to some problems of multicollinearity.

Table 16-VIF (time horizon 2006-2009)

VIF	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
In_Age	2,069	2,107	2,385	2,431	2,162	2,225	2,14
IDR	6,376	2,855	3,251	49,486	11,596	3,666	9,121
HFDS	1,468	1,738	1,412	1,72	1,561	1,753	2,536
HFDR	1,769	1,648	1,469	2,809	2,734	3,174	2,482
In_IM	2,965	2,006	2,922	2,735	2,077	2,188	2,146
VML	6,296	2,2	2,505	32,335	4,523	2,914	2,584
SF	3,54	2,475	3,268	10,901	9,581	4,812	10,297
Fao	2,43	1,906	2,058	1,894	1,623	1,526	1,51
Fda	1,321	1,528	1,775	2,239	2,304	1,635	2,335

Source: Scenari Immobiliari data processed by the author

Therefore, we proceeded to check of condition index from which it is possible to verify that there are high values on the variables already identified by the VIF such as investments in properties and property rights, liquidity and bonds and financial instruments relating to the exclusive investment and residual components.

Since the same tables, confirm the concept of multicollinearity among the variables IDR, VML and SF, adding the evidence of VIF and condition index, it possible conclude that there is a risk of multicollinearity.

In order to management the problem of multicollinearity has been opted for: first, the aggregation of the variables on residual investment (VML and SF), but the problem hasn't been solved, then for the elimination of the variable linked to financial instruments.

This has led to an improvement in the significance of the model and to solve the problem of multicollinearity on the variables considered, as VIF and condition index present normal values as you can note from following tables.

Table 17- R^2 and Beta Factor new model (time horizon 2006-2009)

Sharpe	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
R^2	0,696	0,873	0,534	0,782	0,714	0,698	0,679
Sig	0,061	0,001	0,291	0,015	0,048	0,060	0,076
R^2 adj	0,452	0,772	0,162	0,608	0,484	0,456	0,422
Beta							
In_Age	0,442	0,225	0,642	0,197	0,253	0,285	0,195
IDR	-0,17	0,032	0,027	-0,251	-0,113	-0,074	-0,036
HFDS	0,33	-0,253	-0,235	0,26	0,19	0,046	-0,043
HFDR	0,134	-0,165	-0,113	0,176	0,397	0,266	0,145
In_IM	0,676	-0,429	0,324	-0,159	-0,083	-0,191	-0,165
VML	0,192	0,291	0,072	-0,302	-0,605	-0,564	-0,433
Fao	-0,011	0,815	-0,556	0,676	0,343	0,542	0,492
Fda	0,109	0,244	0,000	-0,294	-0,116	-0,043	-0,046

Table 18- VIF new model (time horizon 2006-2009)

VIF	12/31/2006	06/30/2007	12/31/2007	06/30/2008	12/31/2008	06/30/2009	12/31/2009
In_Age	1,938	2,045	2,001	2,431	2,136	1,976	2,106
IDR	3,210	2,398	2,276	8,378	2,014	1,467	1,806
HFDS	1,437	1,738	1,386	1,589	1,561	1,734	2,491
HFDR	1,560	1,435	1,442	2,746	2,727	3,067	2,480
IM	2,784	1,928	2,754	2,653	1,990	1,867	1,658
VML	4,258	1,378	2,123	7,164	2,215	2,539	1,640
Fao	2,288	1,894	1,959	1,684	1,623	1,517	1,491
Fda	1,318	1,512	1,675	1,625	1,448	1,194	1,219

Source: Scenari Immobiliari data processed by the author

4.Conclusions

The composition choices of the real estate portfolio are a topic of great relevance in the context of real estate investment vehicles.

The analysis focused on the investment choices of Italian retail funds examined in the sample, with a particular reference to the importance of different types of assets on the Exclusive and Residual investment, trying to prove how they can affect the performance of the funds.

As far as Exclusively investment is concerned , after a close examination of the composition of portfolios for the target use and location of properties, it was evident that funds tend towards specialization rather than diversification.

The reduced diversification by sector or region does not necessarily create negative impacts in terms of overall risk, in fact it might be effective in the light of the peculiarities of each market and real estate sectors, which require an appropriate specialization of knowledge and skills, especially in periods of real estate industry slowdown. (Cacciamani and Ialesi 2010)

Through the analysis of the composition of retail funds in the sample, with regard to target use, it may be seen that most of the funds, invests primarily in property-use "office" and "retail", while other categories are less relevant.

These investments can be further divided into the two fund setup typology, from which it can be seen as seeded funds made the higher investment than blind pool funds in office, whereas in retail sector a reverse trend can be witnessed.

Given the characteristics of the offices, industrial, retail sectors in Italy, the decision to privilege the allocation of resources to non-residential segments of the Italian market determines a natural concentration of investment, especially in areas of northern and central Italy where the opportunities of investment in these segments are by far greater (Giannotti and Mattarocci, 2010)

With reference to asset allocation for property locations, (macro-area) it has been observed how most retail funds invest primarily in Northwest and Central areas rather than in the South and in the Islands; fund investments are concentrated in Lombardy for the Northwest, in Emilia Romagna for the Northeast, and, as far as the Central area is concerned, there is a prevalence of investments in Lazio.

In Lombardy and Emilia Romagna blind pool funds made more investments, while in Lazio seed funds hold a larger share.

The portfolio choices are affected by the problem of territorial fragmentation that characterizes the Italian real estate market, because the different types of asset are not distributed evenly over the national territory, but they are concentrated in specific urban contexts. (Cacciamani and Ielasi, 2006, Cacciamani and Ielasi, 2010).

The real estate portfolio has been examined with reference to its degree of concentration by calculating the Herfindahl index for property-typologies and property locations of each individual fund; the result of this analysis show that the portfolio is highly concentrated at both sectorial and geographical level.

In particular Herfindahl for property-type is higher for the seeded funds than for the blind pool funds, Herfindahl for property-locations is similar for both typologies but resulting in slightly higher for the blind pool funds in the last 4 semesters analyzed.

Finally, the analysis on the investment policies of the real estate funds focused on the residual investment as in our sample as there are some funds which have investments in liquidity and bonds and financial instruments in their portfolio.

These values appear to have a lower incidence in the investment policies of the retail funds and both types of funds have a similar value as far as liquidity and bonds are concerned; as for the financial instruments, on the contrary, there is a sharp difference between the blind pool funds, which record greater investments and seeded funds.

Both the studies reviewed and the research, have provided useful information about the relationships between the portfolio composition choices and performance assessment of retail funds examined.

As for funds performance, taking into account the risk and return profile of portfolio, Sharpe ratio was built, in order to obtain an indication about the fund which has achieved the best performance for the same risk .

The analysis showed how the investment and composition choices of portfolio impact significantly on the performance of funds and, as pointed out in previous studies (Morri and Lee 2009) the variables having the greatest effect on the latter are the fund setup typology, their age and sector diversification.

Particular attention was paid to fund setup typology, which affects the investment policy and may thus indirectly affect the relative risk /return ratio (Cacciamani and Ielasi, 2006).

In fact, throughout the period subject of study, it could be seen how an increase in performance may occur in relation to the fund setup typology, as in the presence of blind pool funds obtain a higher performance than in the presence of seeded funds.

The funds setup typology impacts across all other variables considered, especially in the case of the age, and of Herfindahl index for property typologies.

The performance, therefore, is positively related to the fund age, that is, mature funds have better performances than younger ones. (Gregory et al., 1997).

The results of the survey, coherently with the literature, show how a greater level of sectorial diversification in the portfolio leads to improved performances, compared to the geographical one, as the Herfindahl index for property typology is negatively correlated to the Sharpe ratio.

Compared to the existing literature, the model built provides for the four additional variables including two for exclusive investment (investments in properties and property rights, average property investment), two for the residual (liquidity and bonds and financial instruments).

The first has a significant effect in the context of investment policies, as evidenced in this work, the average property investment affects the performance as the performance is enhanced with the presence of those funds which have a higher average property investment.

Finally, it could be seen that one of the components of the residual investment, "liquidity and bonds", affects the performance of the fund, although in marginal way. Indeed, it is negatively correlated to the Sharpe ratio, that is, a lower share of liquidity and bonds in the portfolio investment would increase the performance, while the variable related to the financial instruments has no relevance in the context of investment choices, instead it creates a problem of multicollinearity, that has been solved removing it from the model.

In conclusion, among the variables added to the model, those which are related to exclusive investment have a significant effect in the achievement of performance, whereas among the variables related to residual investment, only the " liquidity and bonds" one in a marginal way gives value added to the model in the pursuit of performance.

Finally between the two funds typologies studied, blind pool funds present the best features in term of age, sectorial diversification, property average investment, thus improving portfolio performance.

The future perspectives for this work are to extend the time horizon of the analysis, and to make a panel regression in order to identify the differences between the estimates obtained from cross-section analysis and those resulting from time series.

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