Benefits of selection and allocation decisions in the French non-listed real estate investment fund market

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Real estate has become an essential part of institutional investment portfolios and is now established as a source of diversification and added value in the context of multi-class portfolio construction. According to a global survey of institutional investors conducted by Schroders in 2020, one in three (31%) investors allocates more than 5% of their overall portfolio to real estate, and one in eight (13%) even allocates over 10%. However, achieving efficient real estate exposure in practice has often been a challenge because of the main distinctive features of the asset class. Indeed, no liquid market exists for an individual real estate asset, property management is a large contributor to performance, and specific risk is a large contributor to overall risk. Finally, diversification (geographic or by property type) can be challenging for it can hinder economies of scale in property management.

Fortunately, a variety of real estate investment vehicles are available to solve some or all of the challenges typical of direct investing. They fall into three groups: (1) private entities (eg, private equity-like funds), (2) exchange-traded vehicles (eg, REITs) and (3) publicly registered non-listed funds. The latter group aims to follow a 'third way' by striking a balance between liquidity (provided by group (2) but not by group (1)) and decorrelation with traditional asset classes (provided by group (1) but often lacking in group (2)), in order to offer investors the best of both worlds. Public non-listed funds do indeed provide some liquidity, albeit less than REITs, and display lower volatility and lower correlation with equity markets by offering a risk-and-return profile reflective of the underlying real estate physical assets. Examples of public non-listed funds include the non-traded perpetual-life REIT (also called NAV REIT) in the US and its counterpart in France known as Société Civile de Placement Immobilier (SCPI).

The use of non-listed real estate collective investment schemes has been widely explored and analysed in academic and industry research, mostly through region- or country-specific studies given the nature of the asset class and the different regulatory regimes applicable globally. Additionally, fund selection and portfolio allocation decisions, two long-standing research topics recognised as important sources of improved risk-adjusted returns within traditional asset classes like equities and bonds, have also been addressed in the academic literature relating to non-listed real estate funds. However, to the best of our knowledge, there is no published research focusing on French non-listed real estate vehicles with the notable exception of Schoeffler (2020), who conducts an in-depth review of the liquidity of open-end non-listed French property funds.

In a recent research paper (see Guedj, Martellini and Safaee [2021] for more details), we analyse whether traditional investment management techniques such as fund selection and portfolio allocation can be applied to the SCPI fund universe and create value for investors. Our analysis focuses specifically on SCPIs invested in commercial real estate. They have the longest track record and represent 94% of the market in terms of assets under management (AUM). The remaining 6% are comprised of SCPIs designed to capture French tax incentives associated with residential properties and are out of our scope.

The SCPI vehicle and market

The purpose of a commercial SCPI is to own and manage real estate assets in order to generate a rental income that gets distributed to investors in the form of a dividend (generally paid quarterly). It is a regulated investment vehicle supervised by the Autorité des Marchés Financiers (AMF) and equipped with the high level of governance required to attract retail investors. The use of leverage by an SCPI is subject to shareholders' approval and has been historically limited: loan-to-value (LTV) ratios are on average between 15–20% with no more than one out of 10 SCPIs exceeding 30% LTV. This explains why French retail investors often use debt financing (provided by banks) to acquire shares of SCPIs.

The commercial SCPI market experienced annual double-digit growth (mostly driven by capital inflows) between 2009 and 2019, with AUM almost quadrupling in local currency terms to reach €61bn by the end of 2019 (the COVID-19 crisis impacted 2020 AUM growth, which stood at around +10% annualised as at the end of Q3 2020). The SCPI market at the end of 2019 comprised 97 vehicles and 35 asset managers, with 47% (respectively 56%) of the market AUM captured by the top 10 SCPIs (respectively the top five asset managers). Strategy-wise, commercial SCPIs may focus on different classes of commercial real estate assets such as offices, retail shops, hotels, industrial premises, warehouses or medical centres, with the two most common categories being office and retail (representing more than 85% of the exposure in SCPI portfolios). In terms of capital type, SCPI vehicles may be structured as open-end or closed-end property funds. The market was historically dominated by closed-end funds, but gradually shifted to the open-end capital type, now representing 75% of the vehicles and 91% of the AUM, in order to accommodate the large capital inflows.

Performance and risk analysis of SCPIs

We define the price return, the total return and the dividend yield of an SCPI (or a portfolio/index of SCPIs) as follows[1]:

$$\text{Price return between }]t,t+1] = r_{t,t+1} = \ln\left(\frac{P_{t+1}}{P_t}\right)$$

$$\text{Total return between }]t,t+1] = r^D_{t,t+1} = \ln\left(\frac{P_{t+1}+D_{t,t+1}}{P_t}\right)$$

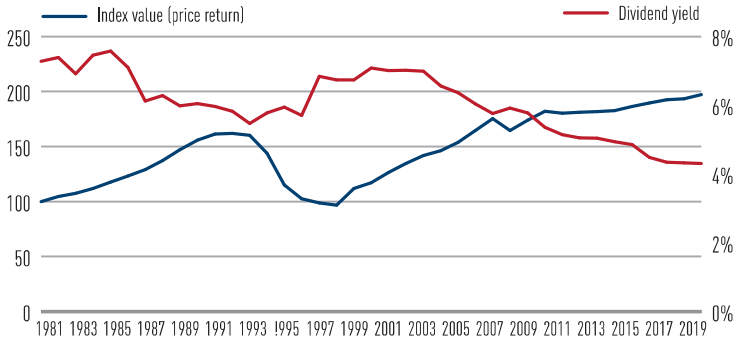
$$\text{Dividend yield between }]t,t+1] = y_{t,t+1} = r^D_{t,t+1} - r_{t,t+1} = \ln\left(1+\frac{D_{t,t+1}}{P_{t+1}}\right)$$

Our analysis of the time-series performance of SCPIs shows very strong stability in absolute dividend distributions ($D_{t,t+1}$ in the above formulas), which effectively makes the dividend yield akin to an inverse function of price and a proxy for the property capitalisation rate. Figure 1 represents the price-return performance and the dividend yield of the EDHEC IEIF Commercial Property (France) index (see EDHEC [2009]) from 1981 to 2019 and shows a long-term trend of dividend yield compression since 1981 (mirroring an upward trend in the price-return index) with an interruption during the European real estate crisis of the 1990s. We also note that over 75% of the index's total return through the period is explained by dividend distribution, which is consistent with the purpose of SCPIs as rental income-generating vehicles.

We also performed a cross-sectional analysis using a dataset kindly provided by the Institut de l'Epargne Immobilière et Foncière (IEIF), the leading independent research organisation covering the French real estate investment market. Our panel of commercial SCPIs includes 53 vehicles with reported performance data from 2003 to 2019. The results are summarised in figure 2, representing the 2003–19 average total return, average price return and average dividend yield for each SCPI, ranked by increasing total return (from left to right). The cross-sectional stability of the dividend yield (in green) is striking; it appears that differences in total return (in blue) are almost entirely explained by differences in price return (in red). Put another way, despite being the largest contributor to total return (as per the time-series analysis), the dividend yield plays little part in differentiating across SCPIs' performances. For instance, the marginal contributions to (cross-sectional) volatility[2] of total return are respectively equal to 89% and 11% for price return and dividend yield.

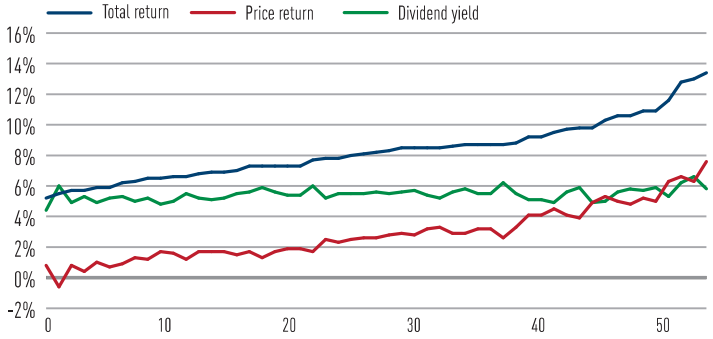
Analysing the time-series volatility of SCPIs' returns requires an understanding of (1) their valuation mechanism and (2) the procedures governing their primary

1. Price-return value and dividend yield of the EDHEC IEIF Commercial Property (France) index



This figure displays the evolution between 1981 and 2019 of the price-return index value (solid blue line, lhs axis) rebased at 100 in 1981, and of the annual dividend yield of the index (solid red line, rhs axis) where the initial annual dividend yield in the figure is by convention computed between]1980, 1981].

2. Cross-section of total return, price return and dividend yield



This figure reports, for each of the 53 SCPIs in our dataset, the 2003–19 average annual total return (solid blue line), average annual price return (solid red line) and average annual dividend yield (solid green line). The SCPIs are sorted by increasing average annual total return from left to right. For each SCPI, the total return (in blue) is equal to the sum of the price return (in red) and the dividend yield (in green).

1 Where P_t and $D_{t,t+1}$ are respectively the reported subscription price at time t and the gross dividend amount paid between $]t,t+1]$.

2 For an introduction to 'marginal contribution to risk' see, for example: Menchero and Davis (2011). Risk Contribution Is Exposure Times Volatility Times Correlation: Decomposing Risk Using the X-Sigma-Rho Formula. *Journal of Portfolio Management* 37(2): 97–106.

and secondary markets, both of which differ between closed-end and open-end SCPIs. In a nutshell, the valuation of the latter is appraisal-based while that of the former is market transaction-based. Consequently, we find the need to adjust the performance data of open-end SCPIs for biases related to smoothing effects (see Geltner [1993]) and possible lack of liquidity. Our statistical corrections also account for occasional staleness (ie, infrequent data) and eventually allow us to produce enhanced estimates of historical volatilities and correlations of SCPI returns (see Guedj, Martellini and Safaee [2021] for more details). The cross-section of SCPI time-series volatilities is consistent with the outcome of our performance analysis: the cross-sectional distribution of SCPI total return time-series volatilities shows a substantial amount of dispersion which is primarily explained by the large dispersion in price return time-series volatilities.

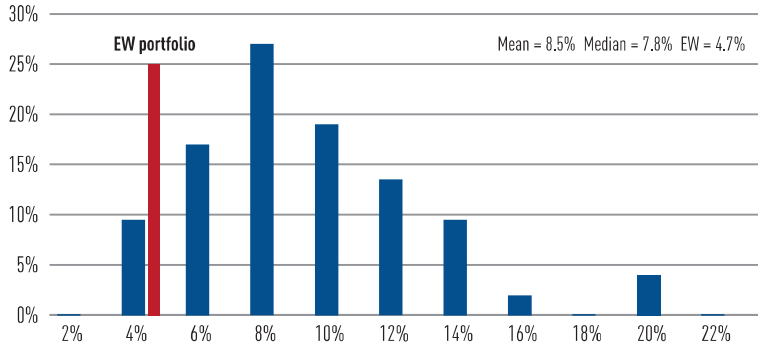
The large dispersion observed in performance and in risk naturally supports the idea that investors would benefit from the implementation of selection and allocation processes. It is also comforting to note that such statistical dispersion can be qualitatively reconciled with the evolution of the sector and the fact that over time SCPIs have been pursuing a wider range of investment strategies, whether it be new real estate asset categories, innovative income models, geographic diversification (eg, European real estate) or the use of leverage.

Portfolio diversification and benefits of allocation

Based on the above results on performance and risk, we would expect a well-diversified portfolio of SCPIs to substantially outperform individual SCPIs from a risk-adjusted return standpoint. The equally-weighted (EW) portfolio of the 53 SCPIs in our panel is a natural candidate to examine. We observe that its 2003–19 average total return (equal to the cross-sectional average of the 53 total returns) is in line with the 'average SCPI' in the panel and dominates approximately 51% of the population. Its 2003–19 time-series volatility is, on the other hand, significantly lower than the 'average SCPI' thanks to the risk-reducing effect of diversification. Figure 3 compares the time-series volatility of the EW portfolio to the cross-section of time-series volatilities and shows that the EW portfolio is less risky than most (88%) of the SCPI panel. This eventually translates into a superior risk-adjusted total return for the EW portfolio: its ex-post Sharpe ratio dominates 92% of the population. As part of our study we also tested other portfolio weighting schemes such as the capitalisation-weighted portfolio, the global minimum variance portfolio or the equal risk contributions portfolio and found substantial diversification benefits in all cases, supporting evidence of the benefits of allocation decisions when investing in SCPIs.

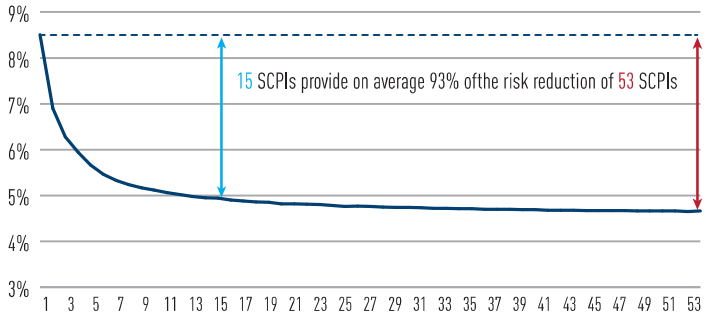
Although the practical implementation of an allocation process is outside the scope of our article, we nevertheless recognise there are possible limits to the benefits of diversification in the presence of market frictions. In particular, the somewhat limited liquidity of SCPIs means that diversification is not strictly cost-free. In the presence of subscription fees and with finite volumes of secondary market, the benefit of diversification may in some circumstances be more than offset by the cost of implementing such diversification. We have therefore analysed the risk reduction created in an EW portfolio as a function of the number of SCPIs included in the portfolio. Figure 4 represents the 2003–19 time-series volatility of an 'average' EW portfolio as we vary the number of constituents from 1 to 53. Each point on the curve is calculated as the average volatility across 2,000 randomly constructed EW portfolios of N constituents (N = 1,.., 53). We observe that the marginal benefit of diversification is quite strong for low values of N, and gradually lessens as N approaches 53. Based on our estimates of volatilities and correlations, we find that 93% of the full risk-reduction is obtained

3. Total return volatility of the EW portfolio compared to the cross-sectional distribution of SCPIs' total return volatilities



This figure superimposes the 2003–19 annual total return volatility of the EW portfolio (red bar) on the histogram (blue bars) of annual total return volatilities of the 53 SCPIs in our dataset. The volatility of the EW portfolio (equal to 4.7%) is lower than that of most SCPIs in the dataset (the mean and the median of the cross-sectional distribution of volatilities are respectively equal to 8.5% and 7.8%).

4. Total return volatility of the equally-weighted 'average SCPI portfolio' as a function of the number of SCPIs in the portfolio



This figure displays the expected 2003–19 annual total return volatility (solid blue line) of a randomly constructed equally-weighted portfolio of k SCPIs as a function of k = 1,...,53. For each value of k, the expected volatility is obtained by computing the mean of the 2003–19 annual total return volatilities across 2,000 random portfolios of size k.

after only 15 SCPIs. This is a promising result that should help SCPI investors optimise the implementation of their allocation process (which will need to account for market frictions). It also creates a strong motivation, along with the large dispersion in risk and return, to explore the benefits of *selection* decisions. Put another way, if 15 SCPIs are enough to build a diversified portfolio, which ones should we pick?

Relevant candidate attributes for SCPI selection

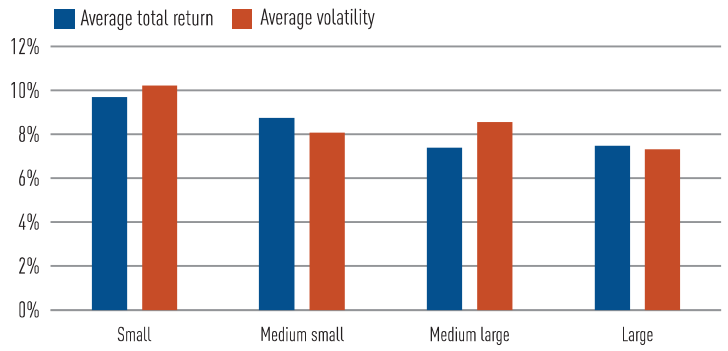
An exhaustive search of value-adding selection attributes, including attributes inferred or constructed from SCPIs' financial statements, and the rigorous design of an SCPI selection process are outside the scope of this article and would at the very least require an in-depth out-of-sample analysis. Our ambition here is simply to provide support for such an initiative by testing a few observable attributes and examining their ability to enhance the in-sample risk-adjusted return profile of an SCPI portfolio. To this end, we considered the relevance and plausibility of an attribute and its explanatory power (if any) with respect to the risk-and-return profile of SCPIs. In particular, we conducted in-sample testing of empirical average (time-series) total returns to assess the presence of statistically significant return differences driven by SCPI observable attributes.

Our analysis covers eight SCPI attributes, each leading to two or more mutually exclusive and collectively exhaustive groups of SCPIs (listed below), that we view as possible candidates for inclusion in a selection process:

- ***Capital type attribute:*** three groups – 'Open-end', 'Closed-end', 'Converted to open-end' (formerly closed-end SCPIs that converted to open-end between 2003 and 2019).
- ***Asset category attribute:*** four groups – 'Office' (SCPIs primarily invested in office assets), 'Retail', 'Specialised' (SCPIs primarily invested in assets that are neither office nor retail), 'Diversified' (SCPIs with no asset category bias).
- ***Fund size (AUM) attribute:*** four groups – 'Small', 'Medium small', 'Medium large', 'Large'.
- ***Volatility attribute:*** four groups – 'Low vol' (SCPIs in the cross-sectional bottom quartile of time-series volatility), 'Medium low vol', 'Medium high vol', 'High vol'.
- ***Asset diversification attribute:*** four groups – 'Low diversification' (SCPIs holding a low number of real estate assets), 'Medium low diversification', 'Medium high diversification', 'High diversification'.
- ***Asset size attribute:*** four groups – 'Small asset size' (SCPIs holding small-sized assets on average), 'Medium small asset size', 'Medium large asset size', 'Large asset size'.
- ***Market beta attribute:*** two groups – 'Low beta' (SCPIs with a statistically insignificant beta with respect to the EDHEC IEIF Commercial Property (France) index), 'High beta' (SCPIs with a statistically significant beta with respect to the index).
- ***Past performance attribute:*** three groups – 'Poor past performer' (SCPIs in the cross-sectional bottom quartile of past total return performance), 'Medium past performer' (SCPIs in the cross-sectional second and third quartiles of past total return performance), 'Strong past performer' (SCPIs in the cross-sectional top quartile of past total return performance).

The most significant results were obtained for the fund size attribute, the volatility attribute and the past performance attribute. The fund size attribute does indeed show explanatory power with respect to risk and return, with smaller funds reporting on average a higher level of total return performance and a higher level of volatility than their larger-sized peers (see results in figure 5). The impact and relevance of the fund size attribute has been documented in the real estate academic literature although the sign of the impact varies (see Fuerst and Matysiak [2013] for an outperformance of larger funds, and Guidolin and Pedio [2019] for an outperformance of smaller funds). Turning to the volatility attribute, we observe that the average level of total return performance reported by 'low vol' SCPIs is not significantly different from their higher volatility peers in the other groups (with the exception of the 'high vol' group which seems to be a proxy for the 'small' group of the fund size attribute). 'Low vol' SCPIs therefore dominate the panel from a risk-adjusted return standpoint. This might be an instance of a 'low vol' anomaly (well-known by equity investors) although rigorous out-of-sample testing will be required before formally including the volatility attribute in a selection process. Finally, we observe some level of persistence in performance, ie, past winners (respectively past losers) tend to outperform (respectively underperform) in subsequent periods. Indeed, figure 6 shows promising differences between the conditional and unconditional probabilities for a SCPI of being a strong/poor performer in the future. This is akin to a 'momentum' effect that is pervasive in equity markets and has also been documented in the real estate literature (see Stevenson [2002] and Guidolin and Pedio [2019]). Further research will be required to assess the robustness (particularly out-of-sample) of the attributes we have highlighted, but our results suggest that investor welfare can be enhanced via suitable SCPI selection decisions.

5. Average total return and average volatility of the four groups related to the fund size attribute



This figure reports, for each group constructed based on the fund size attribute, the cross-sectional average (across all SCPIs comprising the group) of the 2003–19 average annual total returns (blue bars), and the cross-sectional average of the 2003–19 annual total return volatilities (red bars).

Conclusions

The commercial SCPI market offers a significant amount of dispersion in risk and return characteristics, and portfolios of SCPIs exhibit a substantially lower level of volatility than the 'average SCPI' in the panel. Additionally, we find several attributes to have relatively strong explanatory power with respect to such

6. Empirical transition probabilities between 2003–11 performance regimes and 2011–19 performance regimes

	Strong performer in period 2	Medium performer in period 2	Poor performer in period 2
Strong performer in period 1	38%	31%	31%
	(Unconditional probability = 25%)	*(Unconditional probability = 50%)*	*(Unconditional probability = 25%)*
Medium performer in period 1	22%	59%	19%
	(Unconditional probability = 25%)	*(Unconditional probability = 50%)*	*(Unconditional probability = 25%)*
Poor performer in period 1	15%	54%	31%
	(Unconditional probability = 25%)	*(Unconditional probability = 50%)*	*(Unconditional probability = 25%)*

This figure reports the empirical probability for a given SCPI to be among the strong, medium or poor performers during the 2011–219 period conditional on being a strong, medium or poor performer during the 2003–11 period. For example, a medium performer in 2003–11 had a 59% probability of remaining a medium performer in 2011–19. An SCPI is deemed a strong (respectively poor) performer in a given period if it belongs to the top (respectively bottom) quartile of the cross-sectional annual total return distribution for this period. SCPIs that are neither strong nor poor performers are deemed medium performers. Probabilities highlighted in blue (respectively in red) provide support for (respectively against) the idea that performance persists over time.

differences in risk and performance. Both results suggest that value can be added by selection and allocation decisions, which could form the basis of a welfare-enhancing open architecture multi-management approach to investment in SCPIs.

Our work could be extended in several directions. The inclusion of financial analysis data (sourced from SCPIs' financial statements and management reports) seems like the natural step forward to design a robust selection process. Additionally, the identification and/or construction of relevant risk factors will guide investors in their search for material (and low-cost) diversification benefits. Finally, a full-blown multi-management methodology would lay the groundwork for the inclusion of SCPI portfolios as part of the performance-seeking and/or liability-hedging portfolios of innovative liability-driven or goal-based investing solutions.

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