by Frédéric Blondeau, Stéphane Larsen and Julien Dirand

Global Public Real Estate Diversification

Maximizing a Global Portfolio

As pension funds become familiar with the real estate sector, most reach the conclusion others, like the Dutch pension plans, reached years ago — that global public real estate makes sense from a diversification, cost, liquidity and return standpoint. But finding the optimal mix of regional and sector diversification can keep portfolio managers awake at night. A recently completed study by PRESIMA begins to answer some of these diversification questions.

REGION OR SECTOR?

PRESIMA used an analysis of the EPRA/NAREIT Global Real Estate Index to define sector (UBS sector indices) and region correlations (see below). On a geographic level, the correlations are quite low, with the strongest correlation being between continental Europe and the United Kingdom. This is not a surprise, as the whole of Europe is often managed as a single region. It could be surprising, however, to find that more income-oriented countries, such as Australia and the United States, have such low correlations. This just goes to demonstrate the local aspect of real estate.

Correlations were found to be much stronger among sectors than regions. A caveat: U.S. companies are more focused than those in other countries, so in four of the sectors studied, most of the companies were from the United States, which naturally increases the correlation. An additional study, however, in which the maximum weight of any one region in a sector was capped at 20 percent, produced similar results, with correlations on average only 4 percentage points below that of the noncapped study.

Correlation of Returns by Region (January 1999–August 2004)

	North America	Australia	Asia	Continental Europe	U.K.
North America	1.00				
Australia	0.30	1.00			
Asia	0.41	0.16	1.00		
Continental Europe	0.34	0.22	0.41	1.00	
U.K.	0.36	0.20	0.59	0.72	1.00

Correlation of Returns by Sector (January 1999–August 2004)

	Diversified	Hotels	Industrial	Office	Residential	Retail
Diversified	1.00					
Hotels	0.68	1.00				
Industrial	0.70	0.63	1.00			
Office	0.77	0.66	0.84	1.00		
Residential	0.65	0.62	0.68	0.82	1.00	
Retail	0.82	0.65	0.83	0.81	0.68	1.00

GLOBAL PUBLIC REAL ESTATE INVESTING AND THE EFFICIENT FRONTIER

After determining that the low correlations among regions and sectors would benefit portfolio diversification, PRESIMA researchers used the famous Markowitz efficient frontier theory to devise the optimal mix to balance returns with risk. The study excluded the use of short-selling strategies as well as any kind of financial leverage. Three different efficient frontiers were constructed.

- **The six sectors and five regions defined for the EPRA/NAREIT Index**
  The minimum variance portfolio is composed of the Australian industrial sector (39 percent) and the continental Europe office sector (25 percent). Higher returns command a higher allocation to the U.K. residential sector, which makes up 100 percent of the maximum variance portfolio.

- **The five regions defined for the EPRA/NAREIT Index**
  This time, the researchers used only regional diversification within the EPRA/NAREIT Index. Not surprisingly, Asia is not part of the minimum variance portfolio. The two main components of the latter are Australia (57 percent) and Continental Europe (33 percent). Even more interesting, higher return expectations would command higher exposure to the U.K. market. Asia is simply not found at any point on the curve because it adds volatility to a portfolio, without being accretive at the return level from a historical perspective.

■ **The six sectors defined for the EPRA/NAREIT Index**
Using the six sectors of the EPRA/NAREIT Index as the sole means of diversification, the minimum variance portfolio is formed at 78 percent from the industrial sector. The diversified sector allows investors to efficiently add return to their portfolios. Again, one sector is completely absent: the hotel sector is not part of the curve, given the studied horizon (1999–2004).

BOTTOM LINE

Given the three diversification strategies for the EPRA/NAREIT index, which one offers the best risk/return profile? The results of this research suggest the regional strategy gives better results than sector diversification. On the other hand, the combined sector/regional strategy gives the best overall results — i.e., the best returns for the minimal variance.

Obviously, the study has a few "classic" flaws: The study is based on historical data and, most important, the studied horizon might not be a good representation of either the current market conditions or future expectations. It is, however, food for thought and a step in the right direction.

CONCLUSION

The results of this research are both comforting and intriguing. By proving that diversification from a geographic point of view makes sense, PRESIMA portfolio managers found reassurance that the strategy they were applying in their own portfolios adds value, at least in theory. They are left, however, with a lingering question: Why doesn't everyone do this? ❖

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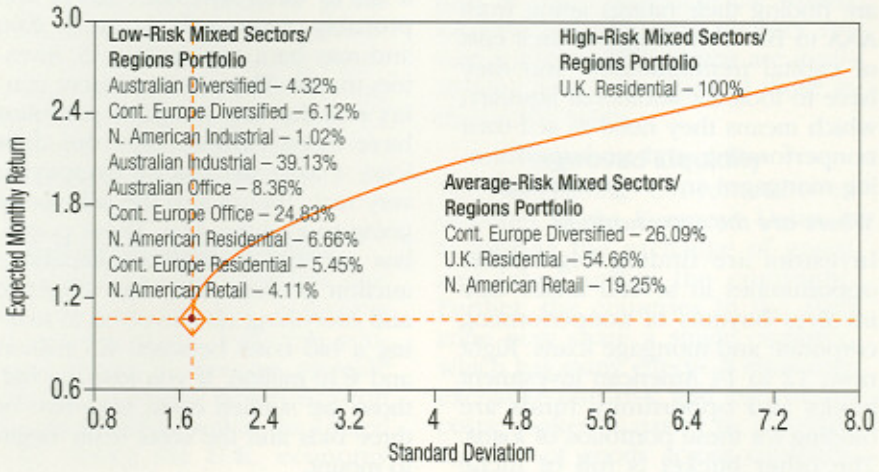
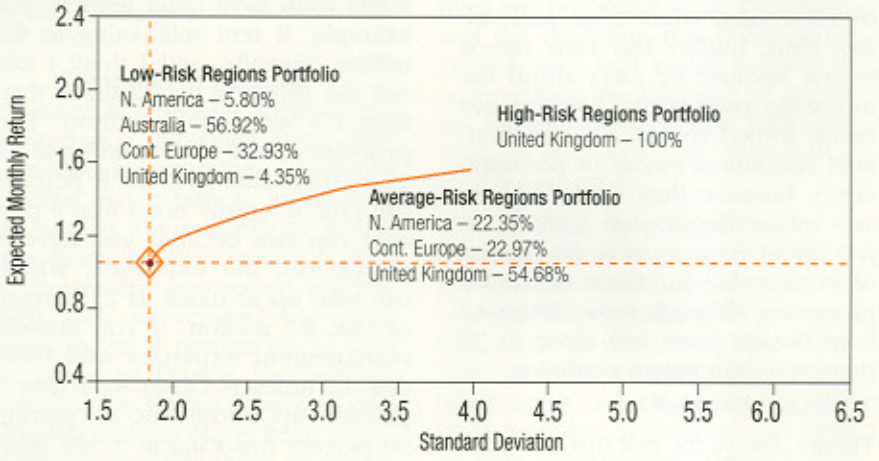
Efficient Frontier for the Regions and Sectors of the EPRA/NAREIT Index (January 1999–August 2004)



Efficient Frontier for the Regions of the EPRA/NAREIT Index (January 1999–August 2004)



Efficient Frontier for the Sectors of the EPRA/NAREIT Index (January 1999–August 2004)