



# ING REIM Europe's Real Estate Risk Analysis Framework

EUROPE

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## A NEW APPROACH TO ANALYSE INVESTMENT RISK IN EUROPEAN REAL ESTATE MARKETS

One of the most important lessons learnt from the crisis is that the real estate industry needs a better understanding of investment risk in real estate markets. Recently ING REIM Europe created a forward looking Risk Analysis Framework (RAF) which provides additional insight into the driving forces behind risk in real estate investment markets in the new era. The framework comprises in-house knowledge and information from our extensive network and recognises that forward looking risk measures for relatively illiquid, long-term investments should go beyond purely quantitative models.

Imagine a European investor who could invest in a prime quality shopping centre in an emerging country. Prime quality implies a modern building with solid contracts and tenants within a large and affluent catchment area. Is buying this prime building then the same as a low risk investment? In our opinion the answer should be 'no'. But 'yes' would have been a common answer before the financial crisis. This misperception was (and still is) embedded in the difficulty of understanding risk in real estate markets. As a result, investors mainly looked at the building level, sometimes neglecting the risk of the market in which the building is located. Thus, they focused on expected returns instead of the more important trade-off between risk and return. With our new approach investors have the opportunity to assess investment opportunities from a broad, risk/return-based, perspective.

In this paper we explain the RAF method, show examples of its output and compare the outcomes with an alternative risk measure. We also provide more insight into the ways the framework can be used by investors in European real estate.

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## OUR DEFINITION OF RISK

For the purpose of this paper we define 'risk' as the possibility that an investment's actual return is less than what the investor expected – and thus focus on downside risk.

Risk accompanies investments but is only acceptable if it is understood and when the return on investment provides appropriate compensation. Our framework provides a more detailed understanding of the various components of real estate investment risk.

## WHAT IS THE ING REIM RISK ANALYSIS FRAMEWORK (RAF)?

The RAF is an overview of investment risk scores for the most important property markets in Europe. The framework provides insight into the driving forces behind risk in real estate investment markets by breaking down risk into several factors and has a broad range of applications.

## THE RISK ANALYSIS FRAMEWORK

Our Risk Analysis Framework is the result of a bottom-up process in which local knowledge of property markets is combined with quantitative risk variables. It provides a forward looking picture of the relative risks in European property markets. An example of a 'market' in this context is 'offices Brussels CBD' or 'prime logistics Milan'.

### THE THREE DIMENSIONS

Real estate investment risk consists of many factors. Central in the RAF methodology are three dimensions which, when combined, cover all the major risk factors important to real estate investors. The three dimensions are:

1. Country Risk
2. Sector/City Risk
3. Currency Risk.

For example, the three dimensions for 'office Brussels CBD' are Belgian Country risk, Office Sector risk in Brussels CBD and Currency risk depending on the investor. By combining the scores for each of the three dimensions, we come to a final weighted risk score for each European property market analysed. This weighted risk score is subsequently used as an input variable for the different applications of the Risk Analysis Framework (see page 4 for a more detailed discussion of applications).

#### HOW DID WE INCORPORATE LOCAL KNOWLEDGE?

We strongly believe that property investing is a local business. In order to exploit the extensive expert knowledge present within our company, we organised sessions in which asset managers, portfolio managers and research analysts simultaneously discussed each dimension of our risk framework. In total, around 45 European property professionals participated. Based on these discussions, we were able to incorporate a wealth of local knowledge in our risk tool. As a result, we believe our framework is unique in its in-depth usage of local knowledge and offers the possibility of providing investors and colleagues with an accurate picture of investment risks in European property markets.

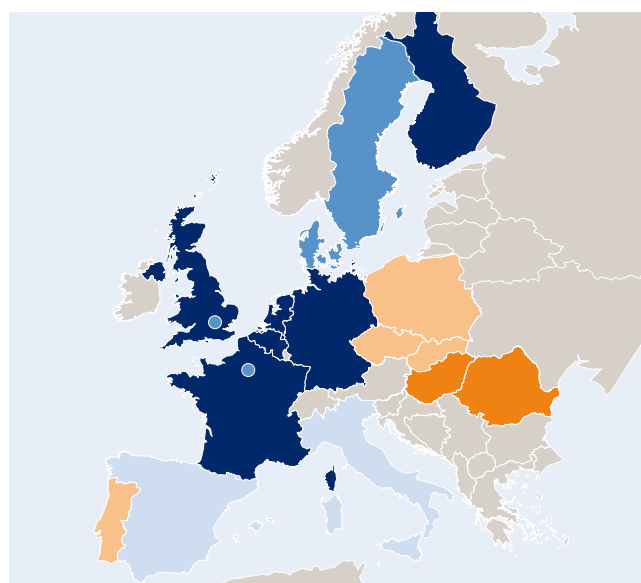
#### THE SHORTCOMINGS OF STANDARD DEVIATION

From the outset of this project, it was obvious that standard deviation, the statistical mainstay of risk models in the investment world, is not readily applicable to property where we have limited data sets, smoothed data and short time series, compared with our equities and fixed income colleagues. Moreover, standard deviation is backward looking and our company wants to provide a solution that is more useful for assessing forward looking investment risks on the sector, country and city level. Consider, for example, a town where a new shopping centre is being developed or where a big employer goes bankrupt – quickly changing the risk of that market going forward.

#### • DIMENSION 1: COUNTRY RISK

An important dimension when judging property risk is the characteristics of the country in which the property is located. Examples of factors examined for this dimension are the political environment, the legal system, ease of building permit issuance, and the dependency on foreign capital. See figure 1 for the outcomes per country, and figure 2 for a comprehensive overview of the factors making up country risk. Scores in Figure 2 are illustrative, where 0 reflects the lowest risk score and 1 the highest.

FIGURE 1 COUNTRY RISK OUTCOMES



Real Estate Country Risk Categories <sup>1)</sup>

- |              |               |
|--------------|---------------|
| Low          | Moderate High |
| Moderate Low | High          |
| Average      | Not Covered   |

1) The very large property markets of London and Paris are given a separate risk category due to their substantially different risk profiles compared with the country in which they are located.

#### • DIMENSION 2: SECTOR/CITY RISK

Within a country, risks differ between sectors, cities and even districts within major cities. Here, we also made use of the extensive local knowledge available in our company. We uncovered the factors that are relevant for a sector and that distinguish it from other sectors or cities within that country. We classified all the property markets within each country on a 'risk axis'. Factors taken into account for this dimension are obsolescence of location and property, lease length and rent level volatility.

An example of the sector/city dimension for Italy is shown in figure 3. Here you see that markets are placed from left to right on the risk axis to show their relative degree of risk within the Italian real estate universe. The figure shows the relative risk ranking of selected real estate markets in Italy. Risk scores refer to prime properties in the best locations (except for the non-CBD offices Italy which covers a broader quality range of office space in Milan and Rome). Prime shopping centres (SC) have the lowest relative risk score because of a combination

**FIGURE 2 COUNTRY RISK FACTORS USED**

| Country                  | ING Bank Country Risk Rating<br>consisting of:<br>- Financial Risk<br>- Political Risk<br>- Economic Risk | Liquidity<br>consisting of:<br>- Property Market Size<br>- Invested Stock %<br>- Stock Turnover<br>- Availability of Debt | Country Real Estate Specifics<br>consisting of:<br>- Tenant Currency Exposure<br>- Foreign Ownership<br>- Supply Restrictions<br>- Tenant Protection<br>- Valuation Practices | JLL Transparency Index<br>consisting of:<br>- Performance Measurement<br>- Market Fundamentals<br>- Listed Vehicles<br>- Regulatory & Legal<br>- Transaction Process | Forecast Uncertainty<br>consisting of:<br>- Spread in Forecasted Returns | Overall Score |
|--------------------------|---|---|---|--|--|---------------|
| Country A (low risk)     | 0.09  | 0.37  | 0.11  | 0.03   | 0.14   | 0.15          |
| Country B (average risk) | 0.36  | 0.78  | 0.33  | 0.40   | 0.38   | 0.45          |
| Country C (high risk)    | 1.00  | 0.94  | 1.00  | 1.00   | 0.89   | 0.97          |
| Weight (adjustable)      | 20%   | 20%   | 20%   | 20%  | 20%  | 100%          |

of characteristics, e.g. multi-tenancy, upside from turnover rent, limited shopping centre provision per capita, licensing restrictions and solid interest from international investors and retailers. Prime offices have a higher risk score due to the cyclicality of the sector and lower tenant diversification. However, the CBD office markets in Milan and Rome are perceived as relatively low risk because of the limited grade-A stock and therefore solid demand. Until now, the risk level of Milan and Rome office markets were very similar but this is expected to change in the next 3-5 years because of a large development pipeline of grade-A projects under construction in Milan, which is expected to redefine 'prime' to more modern office spaces. Prime logistics has the highest relative risk score due, for example, to the high cyclicality of the sector, low tenant diversification and fairly non-restricted zoning and permit issuance.

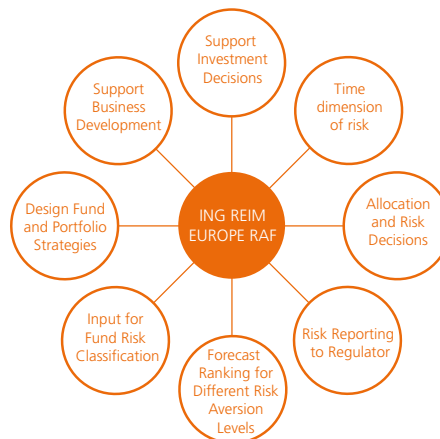
**• DIMENSION 3: CURRENCY RISK**

Of course currency movements influence investment returns. This risk can be mitigated via currency hedges, but these come at a cost and do not fully offset this risk. Therefore we include a currency risk dimension in our framework. The currency risk variable can be adjusted for investors from other currency regions. Currency risk input for our model consists of the volatility in exchange rates between two currencies.

**APPLICATIONS OF OUR FRAMEWORK**

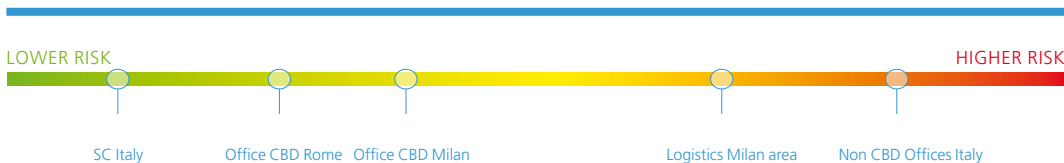
Given the importance of risk assessment in investment decisions, there are a number of ways to use this framework, as illustrated in Figure 4.

**FIGURE 4 APPLICATIONS OF THE ING REIM EUROPE RISK ANALYSIS FRAMEWORK FOR REAL ESTATE INVESTORS.**



Below we briefly describe several applications of our framework and discuss how our clients can benefit from this.

**FIGURE 3 SECTOR/CITY RISKS WITHIN A COUNTRY - EXAMPLE ITALY**



Source: ING REIM Europe RAF, ING REIM Italy (asset/portfolio/country/fund managers and research analysts).

• RISK REPORTING TO REGULATORS

Property investors such as pension funds and insurance companies are facing a much tougher regulatory environment, with more stringent demands regarding sophisticated risk reporting. We believe that the Risk Analysis Framework could support investors in reporting on property market risks in a consistent and structured manner.

• SUPPORT INVESTMENT DECISIONS

Investing in a specific property is not only a choice for a sector but also for a country and city. All these factors play a major role in the overall risks involved with the investment. By breaking down this ‘market risk’ into various risk factors we are able to create more comprehensive risk analyses, thereby supporting investment decisions.

• RISK BASED ALLOCATION DECISIONS

After the crisis, property market risk has become an even more important driver for our investors when they are considering investments in different locations and property sectors. Our framework offers a better understanding of property market risks and improves our allocation and risk studies. The same logic applies to designing **FUND AND PORTFOLIO STRATEGIES**, as this is also basically a matter of allocating capital within funds among properties in different markets, each with its own specific risk.

• INPUT FOR FUND RISK CLASSIFICATION

We are currently developing a comprehensive framework to classify all the major risks inherent in property funds. These fund risks can be broken down in several components, such as property risk, leverage risk, concentration risk and currency risk. The risk of the property markets determined with the RAF is an additional type of risk. We believe that this framework can support investors in their decisions to allocate capital among different property funds.

• RANKING THE MARKETS BASED ON RETURN OUTLOOK

Another application is the ranking of return outlooks for different markets on a risk/return basis. As an illustration, if the expected total return of Milan Logistics is 9% compared with

7% for Brussels Offices, superficially the former investment would be more attractive. But taking differences in country and sector/city risks into account, the relative attractiveness of the two markets would be reversed for the risk averse investor. Figure 5 shows our return outlook ranking for European Shopping Centres both on an absolute return basis and on a risk adjusted basis.

FIGURE 5 EXAMPLE FORECAST RANKING SHOPPING CENTRES

| Rank | Absolute Return Investor | Risk Averse Investor |
|------|--------------------------|----------------------|
| 1    | France                   | France               |
| 2    | Sweden                   | Germany              |
| 3    | Poland                   | Sweden               |

• PROVIDE INSIGHT IN THE TIME DIMENSION OF RISK

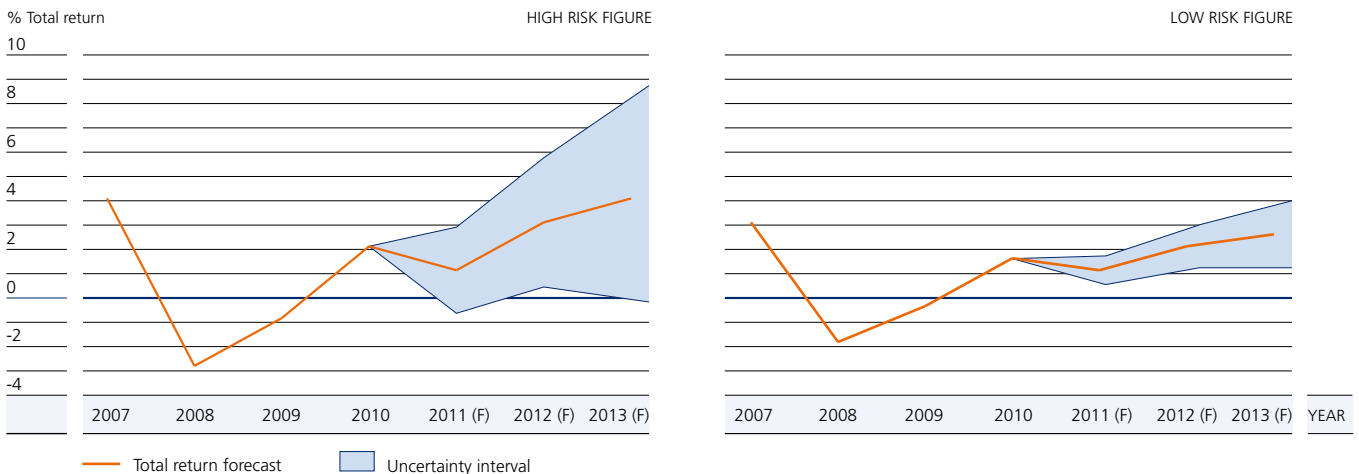
Besides existing differences in risk levels between locations and sectors, we also recognise that the increase in risk over time differs per market. Therefore the increase in uncertainty over time is linked to the risk of the underlying market. Markets with a higher risk profile are expected to exhibit stronger risk amplification over time than markets with a more muted risk profile. Figure 6 shows the visual representation of this concept.

• SUPPORT BUSINESS DEVELOPMENT

Investment products should be developed on the basis of the investment needs of the investor. An important consideration in the set-up of new funds is the expected risk/return profile. By using the outcomes of the RAF, we can design investment products that allocate capital to property markets which match the investors’ risk preferences.

By using the RAF in conjunction with our total return forecasts for 67 markets across Europe, we can provide investors with tailor made rankings of the attractiveness of property markets taking their specific situation, priorities and level of risk aversion into account.

FIGURE 6 UNCERTAINTY INCREASES OVER TIME



### SOME OF THE MOST SURPRISING AND INTERESTING OUTCOMES OF THE PROJECT

When we looked at the historical return series for European logistics, the sector showed relatively high returns accompanied by relatively low risk based on standard deviation. Our local experts, however, considered the logistics sector to be the highest risk sector. This suggests that the traditional standard deviation analysis understates the risks in the European logistics market. How can this be? More in-depth analysis revealed that prime logistics data do not reflect logistics portfolios in the long run because this sector is, in general, downgraded to non-prime more quickly than other sectors.

Another interesting finding that surfaced from the project and that ran counter to 'common wisdom' in the industry was that shopping centre investments in, for example, Romania and Slovakia, are considered riskier than CBD offices, due to limited shopping centre supply constraints.

### COMPARING OUR RAF WITH AN ALTERNATIVE RISK MEASURE

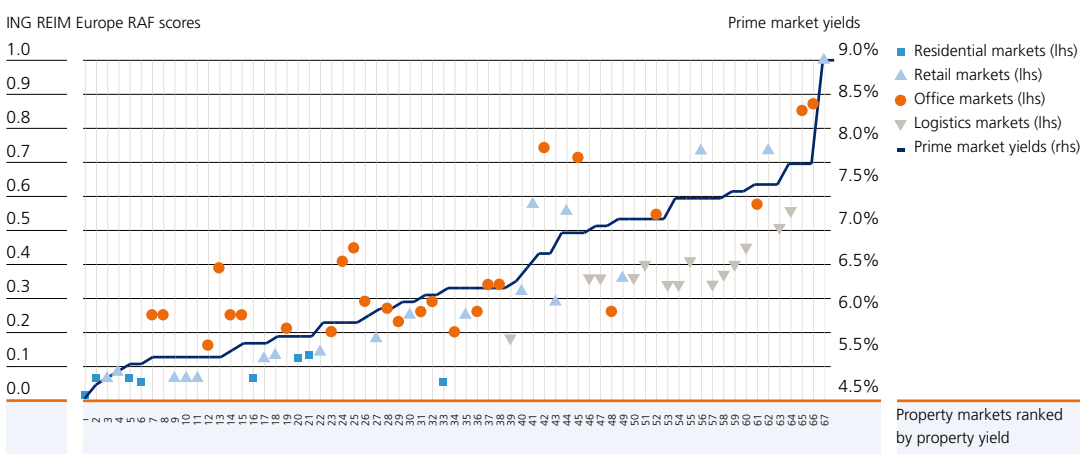
After finalising the risk classification of European property markets, a relevant question is how the outcomes relate to alternative risk measures. We already discussed why standard deviation is not ideal as the alternative due to short and sometimes non-representative data series. A measure that is often considered a good proxy for investment risk is property yield because it shows the level of direct return investors expect from an investment. In this line of thinking, higher risk levels require higher levels of direct return. In order to assess the outcomes of the Risk Analysis Framework we compared the outcomes with prime investment yields in 67 property markets spread over the four main European investment sectors: retail, offices, logistics and residential.

If yield is an accurate risk measure, our risk scores should be very close to the yield in each market. But property yield alone cannot be the ideal risk measure because it only measures the income return component of total return, which would cause yields to be higher for asset classes where capital growth is limited, irrespective of the underlying risk profile. Moreover, yields depend on the risk awareness of markets and can be influenced by the composition of the investor base where, for example, a large interest held by local families can drive yields below expected levels. Nevertheless, in general, high yield markets would be expected to also have higher risk scores than lower yield markets. The way to measure this is with a correlation analysis between the property yields and the rebased RAF scores. The direction of the trend of the risk scores would be expected to be similar to the trend of the accompanying yields. Another hypothesis is that the correlation is higher in times of increased risk awareness (2010) than during times of exuberance (2007).

Figure 7 shows this analysis. The correlation between our risk scores and European property yields was 0.6 at the peak of the market's 'irrational exuberance' in 2007, after yields across Europe had gone through a period of compression, and currently stands at a higher 0.8, suggesting yields are more accurately reflecting real estate investment risk in 2010.

Disparities between our risk scores and market yields are the result of factors such as differences in the total return structure of asset classes and the impact of local demand on pricing. Take, for example, logistics markets – these are the grey triangles in the graph. Although the logistics markets are all below the property yield curve, this does not indicate that the market is pricing them as riskier or, in effect, too cheaply. Logistics real estate has a different total return composition than, for example, retail property, which alters the yield profile irrespective of the underlying risk level. Instead, our analysis shows that, in a relative sense, logistics markets have higher risk than residential markets (the blue squares) and that some retail markets are considered riskier than logistics markets.

FIGURE 7 COMPARING RAF SCORES WITH PRIME MARKET YIELDS



## CONCLUSION

In this document we introduced a new approach to understand forward looking risks in European real estate markets. Based on knowledge from our extensive network we scored risk levels of real estate markets along three dimensions resulting in one overall risk score per market. We hope that this framework is a contribution to increasing the transparency of real estate, thereby improving comparability with other asset classes.

The most important findings are:

- There is a need for better understanding risks in European real estate markets
- Our RAF method classifies forward looking investment risk factors and applies these to assign a specific risk score to individual markets
- Real estate investors can use the RAF method for better investment decision making and for improved (risk) reporting
- Comparing the RAF outcomes with an alternative risk measure shows the adequacy of our methodology
- The component based structure of the RAF provides insight into the various components of risk and also enables a customised approach for investors

The ING REIM Europe Risk Analysis Framework is a unique application for risk assessment of European real estate portfolios. Based on many risk factors the model leads to one overall risk score per market which can subsequently be applied in several ways by real estate investors. Furthermore, due to the component-based nature of the analysis, we are able to adjust the weighting of each factor to reflect individual investment and risk preferences. Upon request we can assess real estate portfolios from a risk management point of view or provide a customised risk analysis of property markets in Europe.

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