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NATURAL VACANCY RATES

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The perspective of property investors and advisors is increasingly global and the importance of accurate forecasts in assisting in decision making is well known. This is especially the case in office markets which are arguably the most liquid sector for both global and UK investors. With yields at record lows in many markets, understanding the rental growth dynamic is arguably more critical than at any other time in recent memory.

Recent original research from PRUPIM's research team has sought to understand the differences in the rental growth dynamic in international and UK office markets using the concept of Natural Vacancy Rates. This article presents a summary of this award winning research.[1]

It is common to look at the vacancy rate as a barometer of what stage of the cycle a market is in. In theory, vacancy rates encapsulate the supply/demand dynamics of markets and there tends to be an inverse relationship between the path of vacancy rates and rental growth. The natural vacancy rate (or NVR) is the vacancy rate at which rents are stable, that is if vacancy rates drop below the NVR we would expect rents to start rising while a vacancy rate above the NVR would put downward pressure on rents. The notion of a NVR is borrowed from the theory of the non-accelerating inflation rate of unemployment (NAIRU), a widely used concept in economics.

Rules of thumb in relation to market natural vacancy rates are common in many property markets. However these approximations are, by their nature, imprecise and do not reflect the differences between markets. PRUPIM's research team would argue that the different characteristics of markets means that the vacancy rate which triggers rental growth will be different in Beijing than Berlin. And for UK investors it will be different in Bristol and Birmingham or in the West End and the City. Understanding these differences can make a vital impact on pricing in markets and can help PRUPIM capitalise on potential mis-pricing.

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Our research sought to estimate the NVRs across major office markets in Europe, North America and the Asia Pacific region. We then offer an explanation as to why NVRs may differ across these markets.

Technical Detail: Estimating Natural Vacancy Rates

To estimate the NVR we used econometric modelling. These models used annual historic data of real rental growth and vacancy rates over the period 1990-2004 supplied by DTZ, JLL Torto Wheaton. We cover 36 cities in total, 20 in Europe, 10 in Asia Pacific and 6 in North America. We make use of the following equation,

$$(1)\quad \Delta Rents_t = \alpha - \beta VR_t$$

where $\Delta Rents_t$ is the change in rents, α is the rental growth when there is no vacant space (when VR (vacancy rate) = 0), β is the amount by which rents fall when the vacancy rate increases by one percentage point and VR_t is the vacancy rate. In essence, the equation describes the relationship between vacancy rates and rents. When supply and demand are in balance, rents will be stable and vacancy rates will be given by;

$$(2)\quad VR = \alpha/\beta$$

This is defined as the natural vacancy rate - the vacancy rate where the market is in equilibrium. Note that vacancy rates will not be zero in equilibrium because it takes time for tenants to find a property as well as for landlords to find occupiers. We estimated the coefficients α and β across the 36 markets using the regression technique of OLS.[2]

Explaining differences in NVRs

So what determines the level of the NVR? Why might this differ across markets? The NVR will depend on the characteristics of supply and demand as well as the general efficiency of the market in terms of the matching of tenants and landlords.

Elastic demand implies that tenants put a high importance to the rent they pay and will hence, on average, tend to shop around for longer before occupying a building. In markets where demand is more elastic the natural vacancy rate tends to be higher. There are two main factors that affect the demand elasticity in a market: location preference and search

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> "In the UK the research suggests that UK provincial markets have higher natural vacancy rates than London as demand is more elastic because tenants are more sensitive to movements in rents compared to London. This result is supported across the world where it is generally the case that provincial cities have higher natural vacancy rates. The London City market has a higher natural vacancy rate than the West End due to the strong preference for location in the West End."

cost for new space. The more tenants value the location advantage of an office building the more rent they would be willing to pay for it and hence the more likely they are to stop their search for a property. If on the other hand, finding alternative offices is relatively quick and costless, tenants can afford to shop around before signing rent agreements. Hence strong preference for location makes demand inelastic and leads to a lower NVR (all else being equal) while low search costs have the opposite effect.

There are two components of supply elasticity: first the willingness of landlords to move rent will be of importance for how long buildings stand empty. Secondly the ease and speed with which stock can be added to the market. The more elastic supply is, the more wiling are landlords to adjust rents and the faster is supply to react to changes in demand. Both of these effects lead to a lower NVR.

The table below summarises the theoretical relationships between demand and supply elasticity and vacancy rates.

Demand		**NVR**
Inelastic	Price not so important - location preference high	LOW
Elastic	Price is important - location preference low	HIGH

Supply		**NVR**
Inelastic	Available stock doesn't respond quickly	LOW
Elastic	Available stock responds quickly	HIGH

Results

The results at the regional level are given in the Natural Vacancy Rate by Region table. While both the results for Europe and North America were statistically significant, the results for Asia Pacific were not. Given the generally looser planning restrictions in the US (implying more elastic supply) the high NVR in North America appears contradictory. However statistical tests implied that this result was due to lower location preference than in the other regions. As US cities tend to be more spread out than locally centred, demand is more elastic contributing to a higher NVR. The reverse is true for the historically mature city markets of Europe where preference for location is higher and thus the NVR lower. In Asia Pacific, there is greatest variation between NVRs across markets. There is a particular mix of developed and developing markets in this region, with the lower NVR in the more developed markets like Tokyo dominating.

Looking at the UK the research suggests that the UK provincial markets have higher natural vacancy rates than London. Demand is more elastic as tenants are more sensitive to movements in rents compared to London. This result is supported across the world where it is generally the case that provincial cities have higher NVRs. The London City market has a higher NVR than the West End market.

Region	**Natural Vacancy Rate**
Asia Pacific	5.6
Europe	6.7*
North America	11.6**
Global	8.1**

Supply is more elastic in the City than in the West End which contradicts these results however the supply effect is more than offset by the strong preference for location in the West End. West End occupiers are more likely to accept rental increases, while City occupiers are more likely to consider relocating to alternative locations. ■

** Significant at 5% level
* Significant at 10% level
Asia Pacific estimate is not statistically significant

1. A paper entitled "Natural Vacancy Rates in Global Office Markets" upon which this article is based received an award for innovative research at the European Real Estate Society conference in 2005 from the UK Society of Property Researchers and will be published in 2006 in the Journal of Property Investment and Finance.

2. Because rents and vacancy rates could affect each other at the same time we have used the Hausman test for simultaneity. Where it was found present a 2SLS method was used using lagged vacancy rates as the instrument.

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ABOUT PRUPIM

PRUPIM is one of the leading real estate investment managers in the United Kingdom. We form part of the M&G Group of Companies which is the asset management arm of Prudential plc in the UK and Europe. We manage in excess of £19 billion of real estate assets, of which £1.4 billion is invested internationally in North America, continental Europe and Asia Pacific. We are invested in over 1,000 properties with more than 6,000 property occupiers. We manage real estate investments for a wide variety of clients, providing core services and expertise in fund management, asset management and property management. These services are offered individually, or on a fully integrated basis.

Our major activities are driven by powerful research, managed by the Global Property Research Team. Our considerable scale and diversified activities allow us to draw on our own multi-dimensional inputs which give us an unrivalled information advantage. We evaluate the macro-economic environment working as part of the global research capability of Prudential. We receive detailed property related data generated by our on-the-ground surveyors. This is fed into proprietary modelling systems which form the basis of our analysis. The 9-strong Global Property Research Team was formed in 1987 and is comprised of property economists, performance measurement analysts and information officers who work together to provide leading property analysis and commentary on the UK and international property markets.

PROPERTY RESEARCH TEAM

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Ben leads PRUPIM's market analysis and forecasting for the UK property market and is responsible for research and strategy in the Asia Pacific and European regions. Ben joined Prudential in January 2003.

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