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Report for

the Royal Institution of Chartered Surveyors (RICS), Cyprus

**Constructing Real Estate Indices for Cyprus:
An Evaluation of the Options**

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Executive Summary

- The aim of this report is to evaluate the options and lay out a framework for the construction of commercial and residential real estate price and rent indices for the Cypriot property market.
- There are a range of types of property indices that have different characteristics in terms of:-
 - Costs and resources required for production.
 - Methodology of index construction.
 - Data used for index construction.
 - Use and purpose of index.

As a result, the feasibility of constructing a given index is dependent upon the resources available, the quality of market data and the purpose of the index.

- Due to the heterogeneity of property, the construction of property indices is more complex than for indices of other financial market data.
- This problem is exacerbated in commercial property markets by thin trading which in other commercial property markets has precluded the construction of indices based on actual property transaction prices. It is concluded that a transaction-based index is unlikely to be feasible for the Cypriot commercial property market.
- For commercial property markets, the two main types of indices produced are
 - Indices based on appraisals of actual properties.
 - Indices based on appraisals of hypothetical properties.

Both types of indices have different strengths and weaknesses.

- Due to the limited availability of appraisals of actual properties and the costs associated with their production, it is concluded that the construction of an index based on hypothetical properties offers a cost effective and robust method of measuring changes in the pricing levels within the Cypriot commercial property market.
- The lack of homogeneity of product, thin trading, and inherent lag in price recording, provides a solid grounding for our recommendation to construct cost-effective hypothetical residential indexes which can record the timing of market change effectively.

Purpose of Report

The aim of this report is to evaluate the options for the construction of commercial and residential real estate indices for the Cypriot property market. The feasibility for a construction of a range of types of index will be assessed. Whilst both are linked, feasibility will be examined mainly in terms of cost and data availability. The report will also evaluate the strengths and weaknesses of alternative approaches to index construction.

Introduction

It is widely recognised that, relative to many financial instruments and other real assets, that there are fundamental problems in the construction of real estate price indices. Due to the uniqueness of each property, it is not possible to observe the actual trading price of a constant-quality individual property or set of properties on a periodic basis. In order to address this fundamental problem, a range of techniques and approaches to the measurement of market performance have emerged. Even within the same market, there can ‘competing’ indices using different samples, different measurement techniques, different assumptions and producing different measures. Before going on to evaluate the relative costs and benefits of different approaches to index construction, we briefly discuss below the current state of the market for commercial and residential property indices.

Commercial Property Indices within the European Union: A Brief Overview.

Compared to markets for shares, bonds and commodities, market monitoring is relatively new to many European markets. In the European Union, outside of the UK, indices of office rental levels for the major financial and business centres have existed since the 1980s. The period prior to the introduction of the ‘Single Market’ in 1992 was associated with a dramatic expansion of British surveying practices into the main European markets. At the same time, there was also a dramatic growth in the scale of market monitoring and measurement. Data tends to be available for cities that generate sufficient revenues from (typically cross-border) investment and letting activities. As a general rule, the higher a city in the global urban hierarchy, the more intensely its commercial property market is monitored. There are two main types of indices produced in Europe to monitor European private property markets.

Global Property Advisory Firms

The large global property advisory firms (JLL, CBRE, DTZ, Cushman Wakefield) collect data at the city level. Typically they monitor price (rental levels, yields), supply (vacancy rates, development pipeline) and demand (take-up) trends for varying samples of European cities. In terms of price indices, every quarter there is a survey of local offices within internal staff in each local office estimating the selling or letting price for a hypothetical building with specified lease terms and in a specified location in each city that is monitored. Typically, basic data are used for marketing purposes (e.g., market reports) whilst more detailed data is reserved for clients to support transaction evaluation. They do not provide an index that measures the performance of *actual* buildings.

Initially, local offices were often permitted to set their own definitions. One consequence of this was the development of local conventions for measurement and definitions associated with key time series. As a result, approaches used to define rents, yields and other key time series often varied

Box 1 Constructing an Equity Market Index

In order to appreciate the limitations of many property indices, it is worth noting the characteristics of indices for other financial assets. For bond and equity analysts it is easy to take for granted the quality of the data generated about market performance. Whilst there are many technical considerations involved in the construction of an equity market index e.g. incorporation of dividend payments, weighting etc; there can be very little dispute about the fact that, relative to property indices, they:

- are able to be fully representative of the market or sub-market being measured;
- are cheap to produce;
- are based upon actual transaction prices pinpointed at a specific point in time;
- are investible; and
- can be checked and replicated.

There is no uncertainty about whether recorded returns reflect actual returns. As such, equity indices can inform market participants with accuracy and precision of historic risk and return for the listed equity market or part of the listed equity market. They, therefore, provide a reliable basis to calculate performance attribution and to inform strategic and tactical asset allocation. For commercial property indices in particular, the conditions noted above rarely hold. As discussed overleaf, property indices are particularly affected by combination of timing imprecision and appraisal and sample biases.

by country and, sometimes, by market, sector and firm. For most major business and financial European centres, historic office rental time series are available from the early 1990s. Comparable data for the retail and industrial sectors is much more limited.

These index producers now provide access to detailed market indices via subscription. The demand for this service has been driven by the growth of pan-European real estate investment and the associated demand for pan-European research and investment strategies. This trend has led advisers to move towards definitions that are consistent across borders. In addition, some advisers are starting to consider sharing market data. The research suggests that at the aggregate level and for many markets, there can be disagreement on direction, quantity and timing of market change. The relative merits of these types of indices are discussed in more depth below.

Investment Property Databank (IPD)

Over the last decade, globally IPD have become the largest provider of performance measurement services in the commercial property sector. Essentially, their business model is that individual investment organisations provide IPD with details of their assets and their assets' financial performance. This information is then aggregated to produce indices for the national market or sub-market. The individual investors then use this aggregate level data to compare and evaluate the performance of their individual funds. The indices produced are, therefore, based on the performance of actual properties.

IPD produces benchmark indices and market information to provide measurements of property returns in a range of countries and cities. At present, they cover Austria, Australia, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, and USA. Their Head Office is in London with subsidiaries in France, Germany, Sweden, US, Japan, South Africa and Australia. In other countries, they have formed alliances with local partners.

In order to set up an index in a new market, they require a critical mass to build adequate samples of properties. Typically, presumably for the index to be considered representative, investors constituting at least 20% of the investment market are required. To participate in an IPD index, investors need to provide:

- Details of Market Values and Market Rents at the property-level.
- Details of tenant leases at valuation date.
- Details of amount and timing of capital expenditure.
- Details of transactions.
- Property management costs.
- Other non-recoverable revenue expenditure (vacant rates, non-recoverable maintenance costs, bad debts etc).

More detailed evaluation of this type of index is provided below.

We are not aware of any commercial property indices produced in Europe that are based on actual property transactions. However, due to the larger volume of transaction activity, the majority of residential property indices use transactions as a base for index formation.

Residential Indices

In contrast to the commercial sector, there are a whole range of residential price indices produced by governmental and commercial bodies within the European Union. Due largely to the smaller lot size, residential markets tend to generate a greater volume of transaction data. In addition, this greater availability of data has permitted the development of a greater range of indices using a greater range of data types that are used in a greater range of pricing models. The UK provides a good example of the potential sources of data. Indexes by brokers and research organisations are based on asking prices for individual properties. Indices produced by lending organisations use loan data. Finally, indices produced by the government rely on actual registered and/or completed transaction prices. The information from the various sources is then process in different ways. Not surprisingly, there are then

different results generated. Further analysis of residential indices is provided in Box 3.

Purposes of Indices

International institutions, such as the Bank for International Settlements and the European Union, have been advocating the development of consistent real estate indices. Given the importance of real estate lending to financial institutions, for the Bank of International Settlement, real estate indices are a key element of measuring their capital adequacy. For the European Union, the objective is more focussed on improving mortgage market integration. Indices are seen as central to:-

- improving the accuracy of valuation,
- increasing the efficiency of collateral and
- managing real estate risk by facilitating the development of derivative markets.

A key issue in deciding the type of index to adopt is the purpose of the index. Essentially, the extent to which an index is appropriate is related to what it is to be used for. There are three main purposes of indices.

- *Informational* – some indices try to capture the behaviour of a market or a sub-market. Typically such indices are not geared to provide a basis against which the performance of particular investors can be judged. As such, there is often no economic incentive for profit-oriented firms to produce them. However, they can have major benefits to market analysts and participants in that they provide useful indicators of changing market conditions and basis for understanding and analysing market drivers.
- *Benchmarks* – some funds need a benchmark in order to measure their *relative* performance. As a result, the index may need to reflect the particular style or focus of the fund. A benchmark index will often be based upon the aggregation of data from the performance of a number of similar investment funds. Given the demand for investing organisations to be able to display their relative performance, there are a number of firms that have attempted to meet this demand e.g. IPD in Europe (primarily) and NCREIF in the US. A key characteristic is that they usually rely on proprietary data provided by a pool of subscribers.

- *Derivatives* – the real estate sector indices are increasingly being used as a base for the development of derivative instruments.

As stated above, globally IPD are emerging as a market leader in the development of benchmark indices for the commercial real estate sector. They have expanded dramatically over the last two decades in response to demands from institutional investors for performance benchmarks.

Types of Indices

Most *commercial* property indices are based upon valuations. This has a number of consequences for the reliability and robustness of the index. Two main types of valuation index are used – actual and notional property indices.

Valuation-based indices

Due to the insufficient volume of transactions in commercial property markets, valuations often act as a surrogate for prices. Valuers provide key information input regarding the measurement of price levels – estimates of the trading prices of commercial property assets. However, within both the professional and academic research communities, there is scepticism about their ability to fulfil this role in a completely reliable manner. At the individual property level, it is accepted that individual valuations are prone to a degree of uncertainty. In addition, it is believed that valuation-based indices do not accurately record the market's actual performance. There is a substantial literature that implies that valuation-based indices may lag behind actual prices and smooth out periodic fluctuations in price (resulting in an under-reporting of risk in the asset class). There are also some grounds to believe that clients can influence the production of appraisals that are used in the calculation of such indices. A key issue is whether and when there is a better alternative to valuation-based indices.

There are two main types of valuation-based indices used in commercial property markets. Indices based on the valuation of actual properties and indices based on the valuations of notional or hypothetical properties.

Actual Property Indices

Given their purpose, benchmarking indices tend to be based upon the periodic valuations of actual properties. The most common frequency is now quarterly. Such indices are formed by a pool of property investment organisations supplying the independent index producer with property valuation data. These valuations are then aggregated to produce performance measures which can be disaggregated to various levels. For instance, in order to compare itself against its peer group, a small pension fund can asked for an index consisting of small pension funds to be produced.

Indices based on actual buildings reflect the fact that the assets will vary in terms of location, quality, condition, lease terms, tenant covenant and other factors. In addition, they will be affected by depreciation, capital expenditure, management costs and the effects of the quality of the property management. Their main focus is on measuring actual returns achieved in the market. Actual property indices have a number of characteristics:-

Representativeness

They are not representative of the whole market. For instance, in the UK, the IPD index is dominated by large institutional investors and it is the performance of assets owned by these types of investors that is measured.

Cost

Benchmark indices are expensive to produce. The most significant costs relate to:

Valuations: Compared to valuations for lending purposes, the market for periodic valuations for performance measurement tends to be characterised by low fees and low margins. Nevertheless, given the number of assets and the frequency of valuations, the costs of periodic portfolio valuations can be substantial. For benchmark indices, these costs are borne by the owners of the properties rather than the index producer. Generally, for an actual property valuation-based index to be produced, there needs to be a pool of investors carrying out periodic performance measurement valuations.

Information Processing: Substantial resources are required to process the asset-level information provided by owners in order to aggregate the data and generate the index.

Reliability: The problems of actual property valuation-based indices have been widely debated within the real estate research community. Two points are generally accepted.

- i. Since most valuations are based on historic price signals from transactions involving comparable properties, valuation-based indices do not accurately record *the timing* of price movement.
- ii. Due to limited and ‘noisy’ transaction prices, valuers may under-record *the level* of price movement.

However, it is emphasised that the nature and extent of these issues is the source of substantial controversy and debate. These issues are highlighted in Figures 1 and 2 where the performance of the IPD index based on valuations from the private property market is compared with the performance of the EPRA index for UK property shares.

Whilst we need to acknowledge that there are some important differences between listed and private real estate investments e.g. there are gearing effects in the performance of the listed real estate companies, the normal pattern of much higher volatility for the listed real estate vehicles is identified. Possibly, less clear but just as importantly, the IPD index tends to display much more predictability and much less randomness. The central unresolved issue is the extent to which the smoother characteristics of the IPD index reflects genuine price ‘stickiness’ in the property market or reflects biases due to the use of valuations in the index. There may even be a combination of both effects.

Further issues

There are two further issues that tend to be associated with valuation-based property indices:-

- i. Possibly linked to the inherent uncertainty of valuations, small price changes may not be recognised and recorded by valuers since they may appear insignificant or within rounding parameters.
- ii. Valuations are produced before the date of valuation. For instance, it is common that valuations required for 31 December are prepared in early

Figure 1

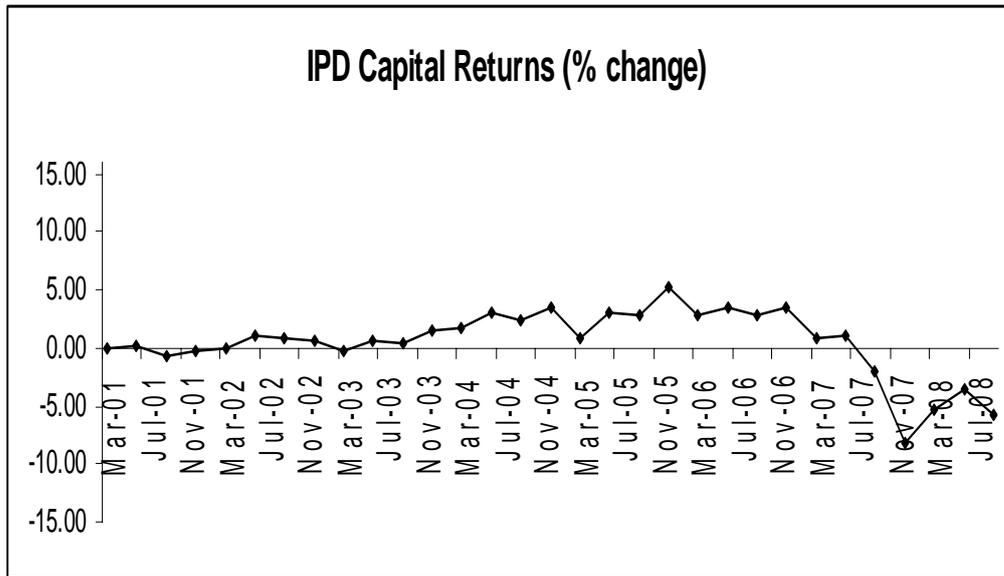
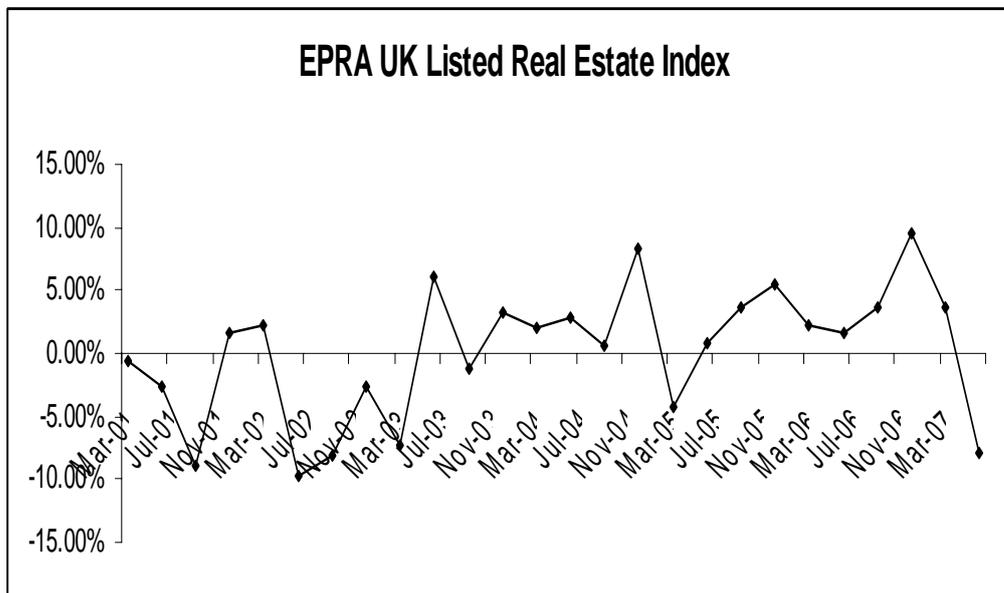


Figure 2



December. This tends to reinforce smoothing of price differences over time.

Given the analysis above, it is doubtful whether sufficient investment funds are present in Cyprus to support the development of an index based on valuations of actual commercial properties. In addition, the costs of developing and providing such an index could be prohibitively high.

Hypothetical or Notional Property Indices

In this type of index, it is the price of a hypothetical property making assumptions about tenant, lease terms, building quality, size etc that is measured. As noted above, whilst indices based on actual properties take into account factors such as depreciation, management costs, voids, bad debts and other financial variables, indices based on notional or hypothetical properties do not take into account these factors. As such, they are not indicative of the returns that an investor would have achieved in the measurement period. As a result, the indices produced for European cities by the large global property advisory firms do not provide measures of return. Below the assumption of JLL regarding their hypothetical property is shown.

Prime Office Rent

Represents the top open-market rent that could be expected for a notional office unit of the highest quality and specification in the best location in a market, as at the survey date (normally at the end of each quarter period). The rent quoted normally reflects prime units of over 500 m² of lettable floorspace, which excludes rents that represent a premium level paid for a small quantity of space.

The Prime Rent reflects an occupational lease that is standard for the local market. It is a face rents that does not reflect the financial impact of tenant incentives, and excludes service charges and local taxes. Stockholm is the only city where it is market practice to quote the rent as Prime Effective Rent, therefore the rent is including incentives (i.e. rent free periods as well as relocation costs, tenant fittings, etc.) The Prime Rent represents Jones Lang LaSalle's market view and is based on an analysis/review of actual transactions for prime office space, excluding any unrepresentative deals. Where an insufficient number of deals have been made for prime office space, an assessment of rental value is provided by reference to transactions generally in that market adjusted accordingly to equate to prime.

It has already been stated that the large global advisory firms measure the performance of the European markets using notional property indices. However, the different measures produced are sometimes inconsistent in the sense that they tell different 'stories' about market change. The fundamental reasons that market monitoring organisations disagree about the past relate to informational inefficiencies in real estate markets. As a result, most researchers would agree that some disagreement between the organisations recording market levels is largely unavoidable. This is illustrated in Figures 3 to 4 which shows the indices of rental levels from three of the leading global property advisory companies for three

Box 2 Definitions: An Example**CB RICHARD ELLIS | MARKET INDEX | CEE OFFICES | Q3 2008**

Prime Rent - Represents the top open-market tier of rent that could be expected for a unit of standard size commensurate with demand in each location, of highest quality and specification and in the best location in a market at the survey date. Prime Rent should reflect the level at which relevant transactions are being completed in the market at the time but need not be exactly identical to any of them, particularly if deal flow is very limited or made up of unusual one-off deals. If there are no relevant transactions during the survey period, the quoted figure will be more hypothetical, based on expert opinion of market conditions, but the same criteria on building size and specification will still apply. For offices, the Prime Rent should represent the typical “achievable” open market headline rent that a blue chip occupier would be expected to pay for:

- an office unit of standard size commensurate with demand in each location, typically 1,000 sq m (10,000 sq ft);
- an office unit of highest quality and specification;
- an office unit within the prime location (CBD, for example) of a market.

It is assumed that the occupier will also be agreeing to a package of incentives that is typical for the market at the time.

Prime Yield - Represents the yield that an investor would receive when acquiring a grade/class A building in a prime location (for offices in the CBD, for example), which is fully let at current market value rents. Prime Yield should reflect the level at which relevant transactions are being completed in the market at the time but need not be exactly identical to any of them, particularly if deal flow is very limited or made up of unusual one-off deals. If there are no relevant transactions during the survey period, a hypothetical yield should be quoted, and is not a calculation based on particular transactions, but it is an expert opinion formed in the light of market conditions, but the same criteria on building location and specification still apply.

Prime Capital Values - This indicator represents the hypothetical value of a square meter of prime space that is let at its full rental value. It is calculated directly from the (annual) prime rent and the prime yield – based on the definitions mentioned above.

Example: If the prime rent is €20 /sq m/month and the prime yield is 10%, the ‘derived’ capital value will be $((20*12)/0.1)$ or €2,400 /sq m

Weighting indices - At a national level, the relative importance of locations is determined by the relationship of each country’s GDP. The weighting at a national level is then allocated between the cities within that country.

European cities. However, we also need to note that transaction and valuation-based actual property indices often provide conflicting signals of market behaviour.

There are also institutional issues in the configuration of the property industry that tend to exacerbate the intrinsic data uncertainty associated with property markets. There are often no agreement on definitions. Market monitoring organisations may disagree on a number of questions. What geographical area is being measured? How are centres/districts defined? What is the quality of building being measured? Does the data reflect prime or average quality stock? Are rents and capitalisation rates reported net or gross? Are rental values effective or headline rents¹? How have effective rents been calculated? Has the rental estimate been observed or is it a pure estimate? Sources of data uncertainty due to these inconsistencies are avoidable. It can be mitigated by a combination of firm cooperation and harmonisation of standards.

Whilst notional property indices do not measure performance, they provide reliable indicators of market price trends and changes. Crucially, they are relatively inexpensive to produce and can be set up quickly. This seems to be the appropriate option for monitoring market conditions in Cypriot commercial property markets.

¹ The distinction between headline and effective rents concerns whether leasing incentives e.g. rent free periods, taking on tenants' previous lease liabilities *inter alia* have been monetised to estimate an effective rent. There is no consensus on how leasing incentives should be monetised.

Figure 3

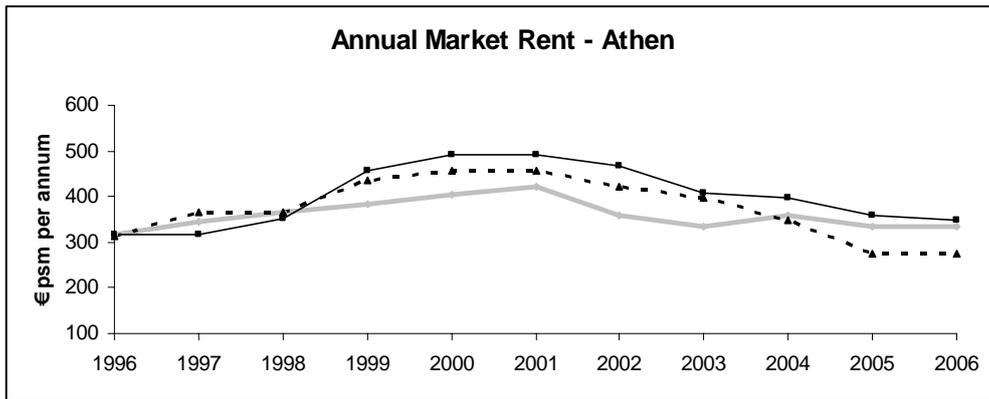


Figure 4

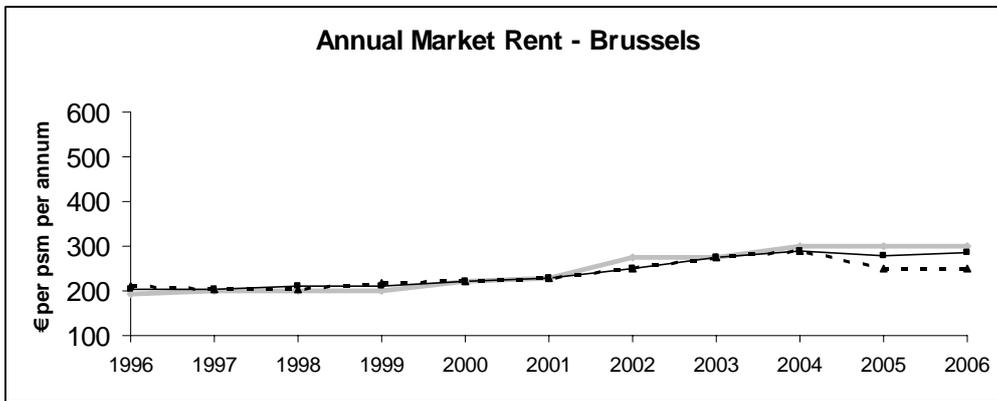
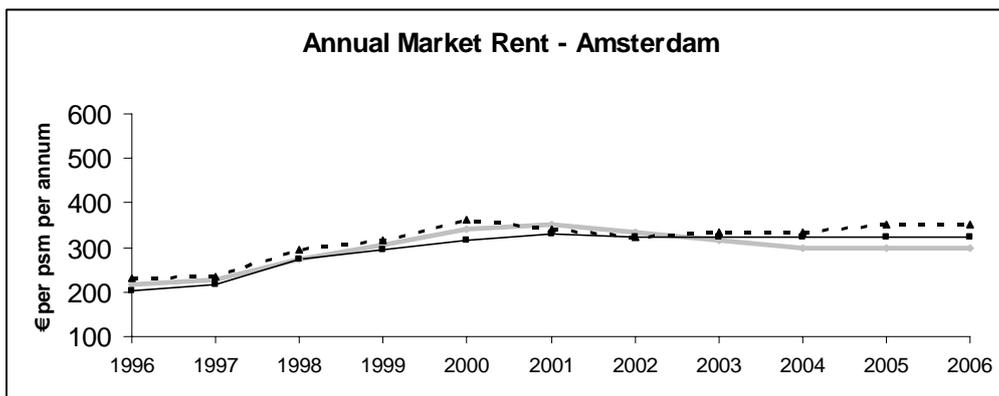


Figure 5



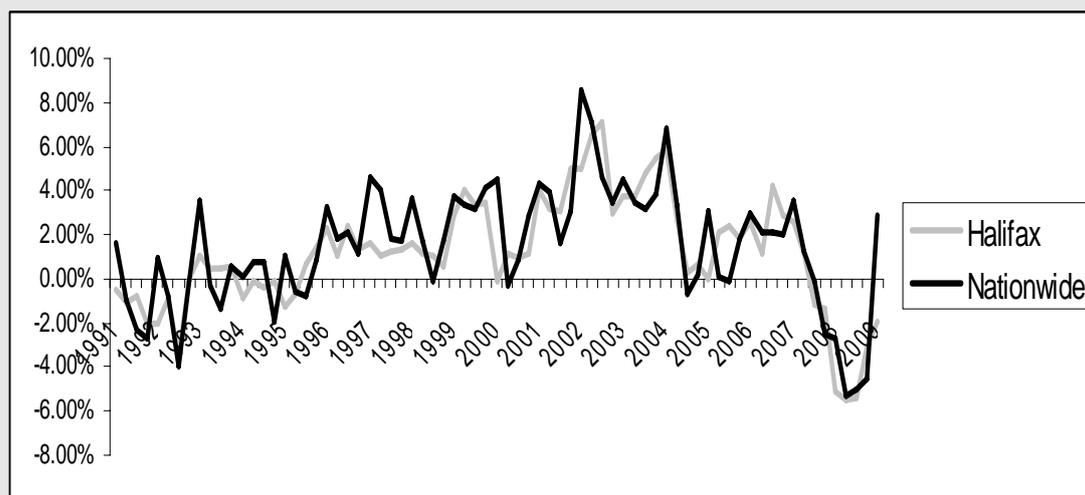
Box 3 Indices for Residential Markets

Due to the higher levels of transaction volumes for residential markets relative to commercial property markets, transaction-based indices tend to be much more common for the residential sector. For all transaction-based indices, it is important to control for non-arms length transactions where special conditions of the transaction may have resulted in a price being paid that is above or below the market level e.g. intra-family transactions. Three main types of transaction-based index have been produced:

- An average price index
- An hedonic price index
- A repeat sales index

The major problem with average prices indices is that they do not control for differences in the attributes of houses in the different sampling periods. Therefore, observed price changes may be due to changes in the market or changes in the quality of the sample. Repeat sales and hedonic methods are often used to control for these problems to produce more reliable indicators of changes in market prices. For instance in the UK, both the Halifax and Nationwide house price indices use an hedonic method. Both hedonic and repeat sales methods require access to a large number of transactions and expertise in the application of econometric techniques. The absence of sufficient transaction volume means that they are not used in for the production of indices of commercial property performance. It is not proposed to outline in detail the basis of these approaches. However, the evidence suggests that they also produce disagreement among index producers about the quantity and, sometimes, the direction of market change. Below, the Nationwide and Halifax house price indices for the UK are displayed. Whilst there is close agreement, it is clear that there are periods when the indices can provide conflicting signals.

Figure 6 Quarterly House Price in the UK – Halifax and Nationwide Indices



Repeat sales indices have been used for housing markets where it is more difficult to obtain data on the attributes of the individual houses. The most well-known repeat sale index is the Case-Shiller House Price Index in the US.

Box 4 A Cypriot Factor?

A common issue for index construction is accounting for idiosyncratic features present in local markets. A key question is whether these idiosyncratic features produce random ‘noise’ or systematic bias. The former does not affect the accuracy of the index when there is an adequate sample. However, the latter can produce a systematic bias in the index.

Given that we are not familiar with the detail of the operation of real estate markets in Cyprus, we cannot report with any authority on potential practices that may potentially distort an index that relies on prices or valuations of actual properties. Essentially the potential concern is with the quality of the data.

Most real estate markets can be segmented into submarkets at varying levels of disaggregation. There are, often geographically specific, unique features that can affect the pricing of units in that locality e.g. localized tax incentives. However, such issues should not affect the ability of an index to measure price change over the market as a whole.

More problematic are market practices that may mean that valuations and recorded price transactions do not record actual prices. For instance, there is a well-established body of academic work looking at valuation production in the UK, US and New Zealand that suggests that valuations can be biased by clients. In the US, the Office of Federal Housing Enterprise Oversight (OFHEO) believe that there was a systematic positive appraisal bias in housing markets during the housing boom due to the incentives for financial institutions and appraisal firms to facilitate transactions. As a result, the OFHEO have been attempting to find methods of eliminating appraisal bias from the house price index.

A key question is whether there are local market practices in Cyprus that create incentives for valuers to over- or under-value **systematically**.

Recommendations from the Index Steering Group (ISG)

Coverage

A key issue for the ISG to address was the sectoral and geographical coverage of the index. This typically depends on a range of factors relating to the purpose of the index, the number of sub-markets, the resources available for index construction. There are generally four main sectors – office, retail, industrial and residential.

It was decided that five sectors would be monitored

- Residential - Apartments
- Residential - Houses
- Offices – CBD
- Retail – High Street
- Warehouse

Typically, only the most important business and population centres are monitored. It was decided that five urban areas would be monitored.

- Limassol
- Nicosia
- Larnaca
- Paphos
- Paralimni-Famagusta

Recognising that there are sub-districts within these urban areas which operate and behave in a varying manner, a total of 46 of these is to be monitored in order to derive the composite index for each category per urban area. In particular, the following sub-districts are monitored per urban area and property type.

	Nicosia
Apartments	Akropoli/Dasoupoli/Agii Omologites.
Apartments	Engomi
Apartments	Palouriotissa
Apartments	Lakatamia
Apartments	Tseri
Apartments	Latsia
House	Makedonitisa
House	Archangelos,
House	Palouriotisa,
House	Aglantzia.
Retail	Makariou
Warehouse	Dali industrial area.
Office	Nicosia-Limassol Av

	Limassol
Apartments	Ayios Ioannis
Apartments	Tsirio
Apartments	Yermasogia
Apartments	Apostolou Petrou & Pavlou/ Mesa Gitonia
House	Ypsonas,
House	Polemida
House	Pareklisia
House	Pyrgos
House	Ayios Athanasios
Retail	Anexartisias
Retail	Makariou
Retail	Kolonakiou
Warehouse	Ypsonas
Office	Dikastirion, Kolonakiou

	Larnaca
Apartments	Makenzy
Apartments	Drosia
Apartments	Aradipou
Apartments	Faneromeni
Apartments	Agios Lazaros
House	Aradipou, Livadia.
Retail	Ermou, Kalogera.
Warehouse	Aradipou.
Office	Stratigou Timagia, Gregori Avxentiou, Zenonas Kitievs.

	Paralimni/Famagusta
Apartments	Paralimni
House	Kokkinos Gremos
Retail	1 Apriliou, Ayios Georgios
Warehouse	Derynia
Office	1 Apriliou

	Paphos
Apartments	Pano Paphos
House	Konia, Emba, Tala, Mesogi
Retail	Pano Paphos
Warehouse	Yeroskipou industrial area
Office	Pano Paphos

Nature of Notional Building

In terms of nature of hypothetical or notional buildings, for commercial notional property indices standard practice is to assume a high-quality building in the best location. However, this may not be appropriate for the residential market where the best quality locations may perform very differently from typical residential properties. Details of the hypothetical properties are provided in the below.

Property Type	<p>General parameters – Common to all Property types</p> <ul style="list-style-type: none"> Ø Freehold, Ø All licences and permits in place (building, planning, etc), Ø With title deed, Ø Subject to VAT, Ø Good state of repair.
Residential - City centre apartments	<p>Residential – Apartments</p> <ul style="list-style-type: none"> Ø City centre, Ø Non tourist areas, Ø Two-bed, Ø 65sqm (minimum size for city centre apartments)+13sqm (covered veranda)+6.5sqm(common area), Ø One covered car parking space, Ø Storage area, Ø Concrete framed/ single leaf brick wall (200mm) Ø Ceramic floors, Ø Built- in wardrobes, Ø Double glazing, Ø 10 apartments in building, Ø On the second floor (from a total of four floors), Ø Only residential uses in the area, Ø Good quality kitchen, Ø One bathroom, Ø Central heating, Ø Split unit ACs.
Residential - Urban area houses	<p>Residential – House</p> <ul style="list-style-type: none"> Ø Semi detached, Ø Three bedrooms, Ø Guest toilet, one bathroom, one bedroom with en-suite bathroom and wardrobe, Ø 250sqm (150sqm ground floor and 125sqm above), Ø 100sqm garden (perimeter of the house). Ø One covered car parking space, Ø Storage area, Ø Concrete framed/ single leaf brick wall (200mm) Ø Ceramic floors, Ø Built- in wardrobes, Ø Double glazing, Ø Only residential uses in the area, Ø Good quality kitchen, Ø One bathroom, Ø Central heating, Ø Split unit ACs.

High street retail	<p>Retail</p> <ul style="list-style-type: none"> Ø City centre: commercial area/high- street, Ø 100sqm (ground floor)+50sqm(mezzanine), Ø Dimension are 5m*20m, Ø Kitchenette, Ø Toilet, Ø Free standing glass, Ø High ceilings.
Warehouse (storage of dry goods)	<p>Warehouse</p> <ul style="list-style-type: none"> Ø Light industrial area, Ø 2,000sqm building (all ground floor) on a 4,000sqm land, Ø 7.5sqm eaves height, Ø Metallic skeleton & Walls made by fair face blocks Ø Roof by metallic crossings with sandwich panels Ø Concrete floor and epoxy paint, Ø Small kitchen, Ø Toilet, Ø Office area (total 200sqm - c10% of total building area).
Offices (Grade A - CBD)	<p>Office</p> <ul style="list-style-type: none"> Ø City centre – commercial area, Ø Purpose built building, Ø Lobby on the ground floor, Ø Covered car parking (three car parks - one per 65sqm as per planning regulations), Ø 200sqm, Ø Raised floor, Ø Double glazing, Ø Open plan (not many columns), Ø VRV, Ø Structured cabling Ø Toilet * 2, Ø Kitchenette.

Frequency

Consistent with typical practices in other markets, it has been decided that the index will be produced quarterly.

Variables Monitored

Consistent with typical indices in other markets, Market Value (per sqm) and Market Rent (Monthly) are being measured. Note that the price per sqm which is to be recorded is based on the Gross External Area (as defined in the RICS' Code of

Measurement Practice 6th Edition) of the property, which in the case of residential units (apartments and houses) includes the living area and covered verandas but excludes common areas.

Monitoring Process

The estimation of price levels is typically carried by property professionals active in the relevant markets. In order to avoid the risk of idiosyncratic interpretations by individuals biasing the index, an important consideration is whether the index is likely to be more robust if a panel of 3-5 expert market professionals provide a single estimate of the various price levels. Alternatively, the index could be based on the mean of 3-5 individual estimates. The ISG have recommended that the each index point estimate will be calculated as the arithmetic mean of three valuers' estimates and that no one valuer can provide data for more than one urban area, i.e. there will be a minimum of 15 valuers providing data.

Measures

The measures produced will depend on the variables monitored. Collection of capital and rental value levels will enable estimates of capital growth, rental growth and yield (or capitalisation rate) to be produced. It has been suggested above that total return measures are inappropriate for notional property indices. The ISG have recommended that Market Value per square metre, Market Rent and Net Initial Yield will be reported.

Index Governance

From a quality assurance perspective, it is common practice for index producers to make transparent the process by which the index is produced and how the index itself is monitored. The general aim is to provide information about the general basis on which decisions relating to the construction and publication of index series are made. Typically an independent committee or advisory board is formed in order to make decisions about how the indexed is produced and who monitor and update the technical guidance for the production of the index. The composition of the Index Committee will be outlined in the Technical Guide.