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**DISCLOSED INFORMATION IN REAL TIME  
- A STRATEGY FOR DEVELOPMENT OF PROPERTY INDEX**

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**Abstract**

A rapid development of national property indices has contributed to a more or less uniform international standard for performance measurement and reporting. However, it is still the experience of the investment community that property index and related information lacks important qualities. From the theory of information economics the information is not on time, incomplete and not fully relevant and accurately related to the decisions it should underpin.

The most serious information problem for direct property, compared to stocks and bonds, is the information time lag. Property information that is older than a month or half a year is compared to day-to-day data series. The most discussed accuracy problem is appraisal smoothing that causes biased portfolio allocations.

Different strategies are discussed for increased disclosure and quality of index related information. The discussion is illustrated with information from the highly transparent valuation process within the Swedish property index. It is argued that a frequent update of the return index, based on an expert system for mass-appraisal, can be a cost effective way to have information that is close to real-time. In addition to that most investors and analysts will regard a transaction-based rental index to be the most relevant information enhancement.

**Keywords: Real time, information economics, direct property, property index**

## **DISCLOSED INFORMATION IN REAL TIME**

- A strategy for development of property index

### **INTRODUCTION**

Return indices for directly owned real property have during the 1990s been introduced in several countries around the world.<sup>1</sup> The NCREIF (USA) and IPD (UK) indices have served as prototypes. The driving force behind the development of return indices is the rapid integration of national real property markets into the global capital market. At the national level, only a small percentage of commercial real estate is traded publicly. It follows that listed real estate companies have limited value compared to the total real property stock and to the rest of the stock market.<sup>2</sup> This limited amount of publicly traded real property should be related to the fact that roughly two-thirds of all assets in a developed country are part of real property; land, buildings and different kinds of infrastructure. It can therefore be argued that directly owned real property to a certain extent should be included in mixed asset portfolios. However, including property in financial portfolios gives birth to general questions about the quality of information from the property market and specifically the quality of the risk and return figures that emanates from property indices.

In relation to securitized investment risk and return measures for real property are considered to have some well-recognized disadvantages:

- Stocks and bonds are traded daily in huge volumes creating massive information about risk and return, while directly owned real property return figures at most are observed on a yearly basis, and at best each month.
- Risk and return figures for stocks and bonds are based on transactions while real property, due to illiquid markets and unique objects, are based on valuations that are estimations of market prices. Valuations are considered to give risk/return estimates that are both smoothed and lagged.<sup>3</sup>
- Stocks and bonds are standardized assets that are traded publicly with a lot of background and side information disclosed, while return figures from real property emanates from property markets that to some extent always lacks transparency and where actors can have essential private information.
- Each property included in a property index is more or less unique. Then there is always a discussion about how the individual property performance should be interpreted in relation to the average index numbers. On another level, there are questions about how well an index represents the total property stock.

It follows that directly owned property, in comparison with securitized investments, carries an informational disadvantage. The question is then how this disadvantage can be neutralized or

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<sup>1</sup> Long time established real property return index in UK (Investment Property Data bank, IPD) and USA (National Council of Real Estate Fiduciaries, NCREIF) are followed by property index in Australia, New Zealand, Canada, South Africa, The Netherlands, France, Germany, Ireland, Finland, Sweden and recently in Denmark, Norway, Portugal and Spain.

<sup>2</sup> A survey, Eriksson - Nygards (1997), on listed real property companies within EU countries 1997/1998 show that the market capitalization of these kind of companies varies between 1% and 3% of the total stock value.

<sup>3</sup> The presence and effects of valuation smoothing and lagging is widely discussed in the literature, see Geltner (1989, 1991).

minimized and how the quality of information related to property index can be increased. The remaining part of this paper is structured in the following way: first there is a more general discussion about information economics as a background for development of an information framework related to property indices. Second, there is a brief presentation of the general business literature about information disclosure. Finally there is a discussion, based on the Swedish experience, about how information related to property indices can be further developed.

## **ECONOMICS OF INFORMATION**

Information is as a factor of production that have a huge impact on property performance and an impact on how real property is regarded as an investment opportunity in relation to other investments. High quality information can increase income, reduce cost and risk, and accordingly, increase market value and shareholder value. Like all other factors of production, information can be evaluated in terms of benefits and costs.<sup>4</sup> Analysis of benefits and costs are made with respect to a set of information characteristics such as:

**Accuracy.** This can be defined as the ratio of correct information over a period of time. Beyond a certain level, the costs for increasing accuracy rise very rapidly. However, some errors will not alter portfolio decisions given a large body of information from a large population of real properties. On the other hand, for decisions about individual property, it is essential that information used as input into market valuations and return calculations are free from errors.

**Completeness.** Current and expected risk and return figures that have no historical perspective, and lacks background information, is not regarded as a complete decision support. A well-grounded prediction about future risk/return and covariance characteristics should be based on a longer historical time period, at least two or three business cycles. Different kinds of performance measures should also be presented in a wider information context that is situation dependent.

**Conciseness** is an information characteristic of growing importance when almost unlimited access to computer facilities creates an information overflow. However, there are no general and objective rules for concise information as each decision maker has his own subjective opinion of good information.

**Relevance.** In all kind of decisions is it crucial to have relevant information. Information about market prices, cash flow and risk/return performance is central to real property. Current and expected risk/return performance should always be disclosed together with essential information about the market for space, rents and different characteristics of the lease contracts, vacancy rates, and space take up etc. Property return and risk performance should also be related to the general development of prices in the capital market.

**Timeliness.** Tardy information always has limited value. Return figures that are reported two months after the accounting year is a thing of the past in relation to real time information from the security markets. With rapid changing markets it is increasingly important to give information that is not only accurate, complete, concise and relevant, but also on time.

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<sup>4</sup> A seminal discussion about value of information is given by Feltham (1968).

However, there is always a trade-off where more timely information in most cases lack some relevance and accuracy. More timely information is always at a cost that increases very fast when information is in real time, or close to.

The worldwide recession in the beginning of the 1990s emphasised the need for early warning systems<sup>5</sup> and an understanding of the factors behind the property cycle. Early and weak signals that are indicators of major changes in property performance are regularly found outside the property industry. Strategic management of real property then needs to be based on real time information from both the domestic property sector and the international business arena. Information is hence regarded as one of the most important assets in strategic management.

## **INFORMATION DISCLOSURE**

The lively debate about information disclosure has in recent years been driven by the same globalisation trend as the capital market. The need for a world-wide business information standard is expressed and institutionalized by IAS ( International Accounting Standard). Added to that we have several examples of widely recognised cases of accounting fraud. The Enron and WorldCom scandals in the USA have sent a shockwave through the business community. On the positive side it has given the words 'transparency' and 'ethical conduct' a more precise meaning. Further the European media has given much attention to extensive executive compensation programs that have not been explicitly expressed in the annual reports. All these factors together highlight the need for information disclosure.

However, the view of information is a matter of culture and tradition. In the Scandinavian countries most of the information about transactions in the property markets is public and easily accessible via computer systems. In the rest of Europe information about transactions is more or less hidden. In USA the degree of disclosure about real property transactions varies between the 50 states, which give quite different possibilities to produce index information with high quality.<sup>6</sup>

Analysis of how different countries' Generally Approved Accounting Standards (GAAP) has adapted to IAS shows a wide range of information disclosure practices.<sup>7</sup> In a global market place with hard competition, the standard request among investors and analysts usually is "give us more information, built on a common standard, and with high quality".

The research on disclosure has during the last decades mainly been related to accounting and to a great extent about the cost of capital.<sup>8</sup> An investment community with no information asymmetries and rich information will in a common sense attract more investors and increase competition. Therefore increased information disclosure will give increased liquidity and lower the cost of capital. It is also argued that stock prices, which contain more information,

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<sup>5</sup> Ansoff (1976) discusses the need for a management system that captures weak signals.

<sup>6</sup> Downs – Slade (1999) address the question of varying access to information about real estate transactions in the 50 US states.

<sup>7</sup> Street (2002).

<sup>8</sup> See Verrechia (1999) for a more theoretical review of research and Healey-Palepu (2001) who formulate a set of statements based on a review of the empirical research literature while Core (2001) and Schadewitz – Kanto (2002) focus on the quality of disclosure.

are more informative about future corporate earnings.<sup>9</sup> More information will also reduce the possibilities of insider trading.

Investors often raise questions about the quality and the value adding properties of information. There is empirical research that supports the standpoint that analysts add value to corporate information by their analysis of firms' financial reporting, forecasts of future earnings and buy/sell recommendations.<sup>10</sup> These results support the view that analysts – as information intermediaries - should have an impact on the kind of information that should be disclosed.

Most arguments are in favour of increased disclosure. However, there are several restrictions, or counter arguments. The first, and most obvious, is that too much information given to competitors about market strategies, planned transactions, desired market positions etc. can distort business. Even mandatory disclosure, by accounting rules, of financial statements can have the effect that undesired information is given to competitors. Analysts can also have links to corporate finance departments, or vice versa, that create incentives for presentation of selected information and insider trading.

In general it is found that sharing information about costs is more beneficial to the firm than sharing of income and market information.<sup>11</sup> Yet another discussion is, in a principal-agent context, about the manager incentives to disclose private information in a situation when they have compensation systems that are related to financial performance. The choice of accruals, reports to analysts, dividend policy etc. can be part of a signal system that is related to the managers own compensation system.<sup>12</sup>

## **INCREASED INFORMATION DISCLOSURE IN THE REAL PROPERTY MARKET**

The construction and real property industries have until recently been typical domestic businesses with local standards and a variety of definitions of central parameters. On the worldwide arena there has also been few publicly traded companies. Information about performance has consequently been sparse, hidden, private in nature and difficult to interpret.

The introduction and development of property indices gives the opportunity to view real property as part of an information system<sup>13</sup> and make way for the property industry to become a natural part of the general industry. However, the kind of information that has to be disclosed is to some extent unique for the real property sector for the following reasons:

- The contractual nature of real property with the lease contracts having a dominant impact on market values.
- The unique market position for each piece of property.
- The expected long economic life cycle for each building with embedded future needs for modernization and maintenance.

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<sup>9</sup> Gelb – Zarowin (2002).

<sup>10</sup> As reported in Healey-Palepu *ibid*.

<sup>11</sup> See Shapiro (1986).

<sup>12</sup> Christensen – Feltham (2000).

<sup>13</sup> Key (2001) discusses the potential for a more transparent real property market based on the IPD index system.

- The strong cyclical characteristics of the property market with lagged links to the capital, rental and construction markets.

So far the development of decision support has mainly been directed towards refinement of existing techniques using the same basic information as before, e.g. de-smoothing and de-lagging of valuation based indices, application of repeated sales techniques for transaction-based indices, decomposition of return figures etc. These efforts are much a consequence of the main original idea of the IPD and NCREIF indices as expressions for return performance. It was not possible twenty years ago to foresee the extended future uses and demand for information from the investment community, e.g.; return covariance with other asset types, extended longitudinal and cross-sectional benchmarking, application of bonus and incentive systems and finally, the growing need for early warning signals.

The framework for discussion about the value of information gives some indicators on how information related to property indices can be developed. One of the most important characteristics of information is timeliness. If we delimit the discussion to more timely return figures there are at least three restrictions, but also possible solutions. First of all how can accurate valuations be conducted at a reasonable cost? Fisher<sup>14</sup> claims that an automated mass appraisal system, that always uses the newest information, is the best way to get real time interim updates of index figures. The more costly valuation of individual property, and aggregation of individual valuation results, is then only conducted with longer intervals.

An automated system, or expert system, for mass appraisal requires access to a rich set of unbiased transaction data and added to that a flow of side information from the rental, real property and capital markets that are inputs into an appraisal model. The role of the valuer is then in a narrow sense shifted to monitor the data capture and calculations and decide about the use of data outliers. In a wider perspective the valuer will have a new role as a qualified interpreter of market and property management information to be able to continuously develop the quality of the expert system.

An automated system, as well the process for valuation of individual property, has to be fully transparent. Information used in the valuation process should on an aggregated level be given back both to the investment community as well as to the valuers, analysts and asset/property managers. A valuation process with a feedback loop is a form of information disclosure that creates market value estimates with not only higher precision, but also a wider understanding of the assumptions and uncertainties that are present.

A second restriction for timely information is technical. A more or less continuously updating of index figures requires a robust expert system that is working with a minimum of human assistance. Data from the market and individual property companies has to be more or less automatically transferred to a central database. Data has then to be structured in a common way and a product of a process that is quality assured.

A third restriction is about information relevance. A day-to-day update of the property return index is not relevant when the flow of information is more or less discrete. The interval for update could be market dependent and related to the number of transactions in the rental and real property markets.

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<sup>14</sup> Fisher (2002).

Information should not only be on time, but also relevant. So far the main ambition among academics and professional practitioners has been to make information from real property a direct parallel to the information from the bond and stock markets. A driving force has been the need to integrate real property into the capital market and the growing importance of institutional mixed asset portfolios. The main approach has been different kinds of mean-variance analysis.

An alternative and complement to the technical mean-variance analysis is to adopt a more fundamental approach.<sup>15</sup> A first step in such an analysis is to focus on the rental market and its different categories of lease contracts: newly signed leases with new tenants, renewed leases with old tenants and the structure of the whole stock of contracts. A rental index, with complementary information about clauses, options, duration, space use etc, is regarded as fundamental and relevant information that can also have early warning qualities, for example see figure 1.

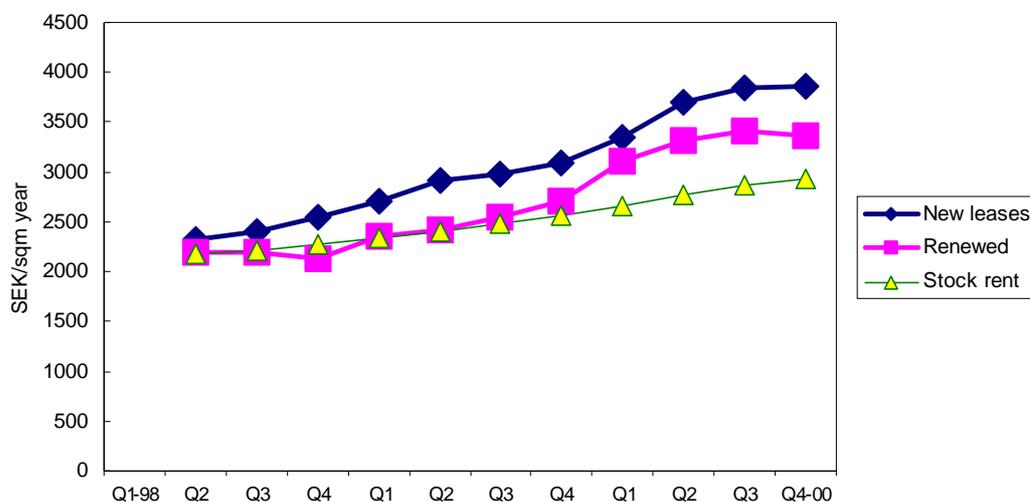


Figure 1 A rental index for office space in Stockholm CBD year 1998 to 2000 based on approx. 800 lease observations each year (three quarter moving average).<sup>16</sup>

The index figures show that new leases, in a market with fast increasing rents, on average are about 10% higher than leases that are renewed with old tenants. With an average lease length of 4,3 years the stock rents will also lag behind the newly signed lease contracts. The index figures also indicate, as an early warning, peaking rents quarter 3 and 4 year 2000, something that was not expected of market participants that were full of admiration for Stockholm as the “IT- and telecom capital of the year”.

Transparency is a necessary condition for evaluation of any kind of information, and a quality that should be attached to each activity in the process of creating information for decision support, e.g. a return index for real property. Valuation is commonly regarded as the weak link in the index process. Sparse and fragmented information from the property market is converted to market value and return figures that have a huge impact on decision-making.

<sup>15</sup> See Pagliari et al (2001).

<sup>16</sup> Eriksson-Widmark (2001) present a prototype for a rental index based on information from lease contracts within the Swedish property index.

The Swedish property index was launched in 1997, just a couple of years after a severe crisis in the financial sector due to a deep fall in the market values for real property. In the aftermath of the crisis there was an extensive discussion about valuations and the role of the valuer. It was then decided that the valuation for the property index should be conducted with extensive information disclosure requirements. Assumptions in individual valuations should not be disclosed, but aggregated assumptions as averages and spread for the valuation parameters, should be given back to all actors in the industry as elements in a feedback system. Since more than 90% of all valuations in the index are based on cash flow analysis there is a rich set of information about all valuation parameters and their relation to each other. Examples of information feedback are given in figure 2-4 and table 1.<sup>17</sup>

Figure 2 shows that the stock rents (rent passing) have continued to increase while the increase in market rents are supposed to cease. This kind of information for each sub-market gives the valuer an indication about rental market trends and a feedback on the rental assumptions. The shortfall of these numbers is that valuations are conducted in December and the feedback is given in September the year after.

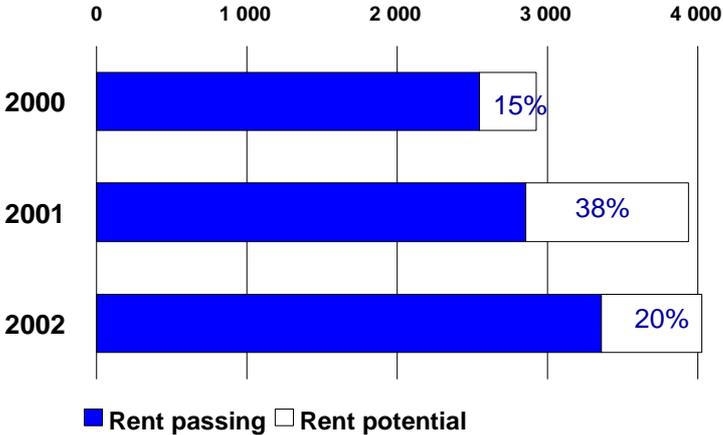


Figure 2 Rent potential (% and SEK/Sqm) for office space in Stockholm CBD by 1 January each year. (Source: SFI/IPD Swedish Property Index).

The use of a fully disclosed cash flow method for market valuation gives birth to a lively discussion about parameter consistency and to what extent used yield and discount figures are true expressions for risk. Put another way, the question is if discount rates in valuations are comparable to interest rates in the capital market. The relation between the discount rate and exit yields is illustrated in figure 3. This kind of figures starts a discussion about “normal relations” between exit yields and discount rates and to what degree outliers can be motivated. Analyses of the numbers behind the figures also indicate that some valuation firms have automated relations between discount rates and exit yields, which could be questioned from both a theoretical and practical point of view.

<sup>17</sup> Figure 2-4 and Table 1 are examples of output from a special designed quality control process within the Swedish property index, see SFI/IPD Swedish Property Index (2002).

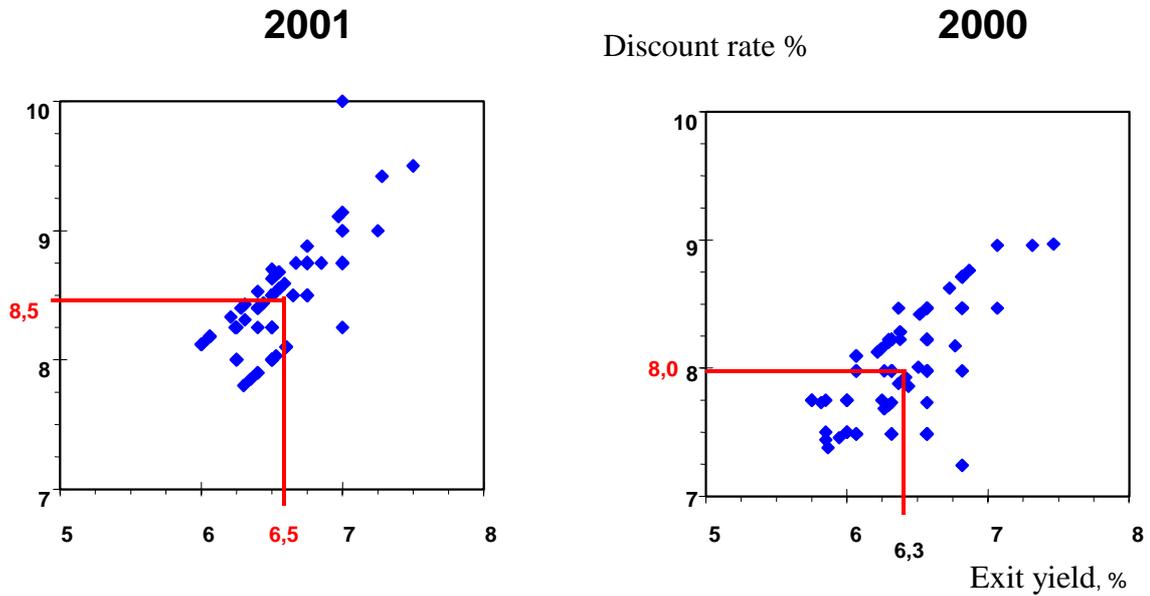


Figure 3 The relation between exit yield and discount rate for office in Stockholm CBD year 2000 and 2001. (Source: SFI/IPD Swedish Property Index).

A widespread opinion in the Swedish property industry is that valuers tend to be optimistic about decreases in vacancy rates and also about the level of operation & maintenance costs. To some extent the disclosure of cash flow parameters has confirmed this opinion and contributed to a debate about valuation accuracy and to what extent flawed parameter estimates are compensated by other assumptions, e.g. assumptions about discount rates and exit yields. Figure 4 and table 1 give some evidence regarding this issue.

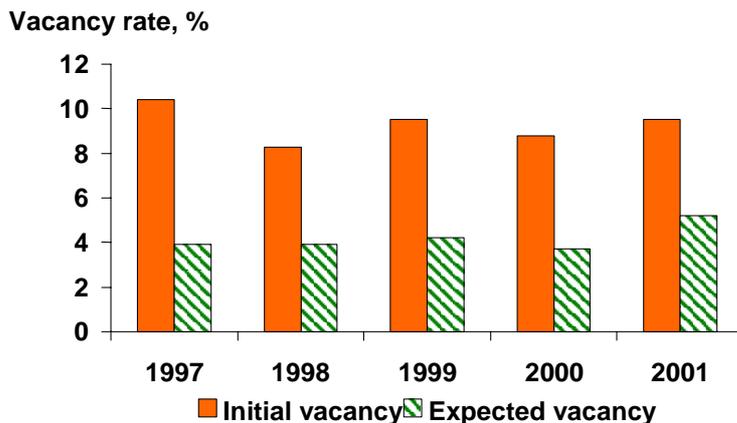


Figure 4 The relation expressed in cash flow valuations between initial and expected vacancy rate for office in 14 major cities by year 1997 to 2001. (Source: SFI/IPD Swedish Property Index).

The actual initial vacancy is over time 8 to 10%, while the valuers assumption about expected long-term vacancy is stable around 5%. That is a clear indication that the expectation about long-term vacancy has been too optimistic. At the same time the level of operating and maintenance cost has been underestimated, see table 1.<sup>18</sup>

Table 1 Estimated operating & maintenance cost in cash flow valuations as a percentage of actual cost. (Source: SFI/IPD Swedish Property Index).

Property type	Year of valuation			
	2001	2000	1999	1998
Retail	79	99	84	78
Office	79	93	96	84
Industry	68	92	87	---
Housing	83	100	90	89
Other commercial	75	79	88	---
Hotel	85	96	103	---
All together	80	96	92	87

Taken all income and cost figures together is it shown that first year net operating income on average is overestimated with some 15-20%. However, a comprehensive survey indicates that reported market values are good predictors of transaction prices.<sup>19</sup> Consequently are the yields and discount rates to high given the fact that reported market values are accurate. The old discussion that discount rates within residual valuation methods had the character of “market correction factor” still has some validity for the cash flow method.

The feedback information illustrated above forces the valuer to formulate assumptions that are closer to the real outcome. The whole valuation process can also be regarded as a process for organizational learning based on both theoretical discussions and empirical findings.

## CONCLUSIONS AND FURTHER RESEARCH

A strategy for development of property market information can be summarized in three words: transparency, relevance and timeliness. Directly owned property will always have an informational disadvantage compared with assets that are securitized. However, the information gap can be reduced if more of relevant information is disclosed and continuously updated.

A frequently updated return index requires an automated mass-appraisal system for estimation of the capital growth part of the index. How this system should be designed in detail is a matter for future research. Ideas can transferred from the development of mass-appraisal systems used for property assessment.

<sup>18</sup> In the standard Swedish lease contract for office space are operating cost and exterior maintenance cost paid by the landlord.

<sup>19</sup> Mokrane (2002).

A transaction based rental index is considered as a logical follow-up and a fundamental background to the valuation based return index. An index based on lease contracts can have qualities that make it possible to establish a trade based on rental derivatives. Since the structure of the lease contracts vary within a wide range is it important to evaluate different types of index construction. The need to have a simple procedure for index update has to be weighted against the need for more advanced information.

It has been shown that a transparent process for valuation gives extended information to the property industry. Based on the case of Sweden is it also obvious that an extensive disclosure of cash flow assumptions has given the value report a new and extended role as decision support. The valuer also has to defend each assumption as part of a financial analysis with logical inputs from property management and the property market. One conclusion is that the “valuer can no longer hide behind the market value estimate” and a transparent valuation process create a need for well-educated valuers.

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