Capitalization rates as risk indicator for (non-)efficient properties?

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Keywords:

Capitalization rates, risk indicator, valuation, efficiency, investor, occupier

Abstract:

Sustainability is at the forefront of recent management discussions. Climate changes, the fact that buildings are responsible for about 40% of the worldwide CO_2-emissions and the increasing occupancy costs force investors and occupiers to change their management strategies and behaviors. But greening the portfolios might sometimes lead into converse directions and different benefits.

All these biased perspectives of investors and occupiers interact in the valuation of the properties as efficient buildings should realize higher capital values as non-efficient buildings since efficiency reduces the property specific risk. Therefore the capitalization rate as all risk yield can be taken as indicator for the individual property to reflect the risks of being (non-)efficient.

The aim of this paper is to analyze how current valuers account for the risk of non-efficient properties in the derivation of the adequate capitalization rate. By combining the investors' and the occupiers' perspectives and taking all their relevant property costs on lease contract level into consideration this paper addresses the overall impacts of efficiency in the valuation process of the property market.

Thereby, the crucial question will be addressed whether significant differences occur in the risk premiums of the capitalization rates for (non-)efficient properties.

For this purpose, the relative risk premiums of 47 properties in the UK, based on data from the IPD Investment Property Databank as well as the IPD Occupier Databank, are each analyzed and measured against tailored IPD capitalization rate benchmarks of direct properties for the years 2007 and 2008. The results will give new insight into the definition of the right capitalization rate. The analysis shall help to explain risk patterns add to an improved understanding of the valuation and differentiation of (non-)efficient properties.

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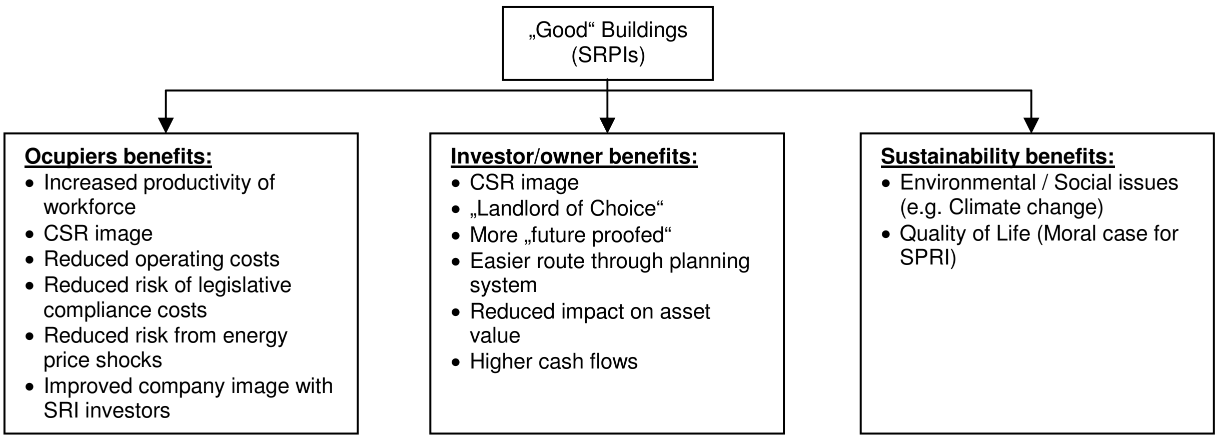
1. Introduction

Social Responsible Property Investment (SRPI) is at the forefront of current discussions in the property market. Climate changes, the fact that buildings are responsible for about 40% of the worldwide CO_2 emissions (Atkinson, 2007; CB Richard Ellis, 2007) and the increasing occupancy costs force investors and occupiers to change their management strategies and behaviors. SRPI seems to offer a variety of advantages for all the actors in the property market (Exhibit 1).

Exhibit 1 benefits associated with „socially responsible" buildings



(Source: Rapson ,Shiers, Roberts and Keeping, 2007; Davis Langdon Consultancy, 2003; McNamara, 2005)

These relations not only refer to the construction of sustainable buildings, furthermore they can also be applied to the usage of the existing property stock. But investors want to see a return for the risk they take in greening their assets (CBRE, 2009). This return should be reflected e.g. in higher rents and values of their portfolios. On the other hand occupiers can't benefit from lower operating costs resulting from more efficient building while the increasing net rents result in the same overall gross rents.

So far existing research on efficient properties is basically based on the investor's point of view. In the context of current discussions about SRPIs extensive effort is being put into the identification of premiums realized by engaging in green investments. Especially in conjunction with certifications such as "Leadership in Energy and Environmental Design – LEED" (USA), "Building Research Establishment Environmental Assessment Method – BREEAM" (UK) and "Energy Star" (USA) considerably research has been published. They seem to give evidence at least in the short term that green rated buildings provide higher rents with a premium of up to 2% and higher selling prices with sometimes 16% above non-rated buildings (Fürst and McAllister, 2008; Miller, Spivey and Florance, 2008; Eichholtz, Kok and Quigley, 2009; Pivo, 2008; Pivo and Fisher, 2009). But all these studies have in common that they do not take into consideration that improving the efficiency of buildings has the biggest influence on the total occupancy costs of the occupiers (Lorenz and Lützkendorf, 2008). Therefore the up to date research does not address this aspect in the underlying calculation of the net operating income (NOI) and the results haven't been linked to the impacts which those findings will have on the occupiers of the buildings. There must be a clear balance between "the value in exchange (rental value) and the value in use (worth to the occupiers)" otherwise occupiers might relocate if they become unwilling or unable to pay the rents asked (French and Wiseman, 2003). With real estate costs as the second or third largest cost factor in most companies models to decrease, to forecast and to benchmark these costs are becoming more and more important (Stoy and Kytzia, 2006). There are also distinct indications that tenants are interested and willing to engage and to integrate sustainability issues in their portfolio presumed that costs, process and benefits are evident (Miller and Buys, 2008). The existing uncertainty regarding these factors and the responsibilities might be one reason why environmental considerations are still neglected in the conventional relationship between landlords and tenants. Although research in this field reveals first indicators for a revision in the management strategies of the persons concerned (Hinnell, Bright, Langley, Woodford, Schiellerup and Bosteels, 2008) including strategies such as lease management (Kahn, 1999; O'Roarty, 2001) or high-level occupancy planning providing "the right amount and type of space at the right time at the right costs with right workplace tools" (Mather, 2004). Against this background identifying the right performance measurement tool is crucial in linking the different goals and interests of occupiers, stakeholder and investors (Jordan, McCarty and Velo, 2009).

First indicators for the integration of different sustainable criteria including efficiency aspects can be found in the property rating systems influencing the calculation of credit and mortgage conditions. The systems imply direct impacts on the loan amount and the underlying interest rate. There is a clear communication of the economic advantages and reduced risks in comparison with conventional buildings (Lützkendorf and Lorenz, 2007).

Further research on the advantages of sustainable strategies has already been done in the industrial sector. For instance Lo and Sheu found that corporate sustainability is an increasing strategy for business. Based on the Dow Jones Sustainability Group Index (DJSGI) their article indicates that sustainable firms are rewarded with a premium on their value (Lo and Sheu, 2007). But so far it still needs to be more clearly demonstrated and understood how efficiency and responsible investments can be integrated in the general evaluation process within the finance and property industries. The aim of this paper is to combine the investors and the occupiers perspectives and take all their relevant property costs on lease contract level into consideration. By doing so, this paper is the first one which addresses the overall impacts of efficiency in the risk valuation process of the property market.

The structure of this paper is as follows. The next section presents the theory, reviews the relevant literature, explains the inferred research model and its underlying hypotheses. The following sections describe the applied method, the considered measures and reports the results. The final section concludes the findings of the paper and highlights its contributions.

2. Theory, Research Model, and Hypotheses

Investors use the capitalization rate to signal changes in the real value of the real estate. Previous studies indicate that the capitalization rates depend on financial variables, local market conditions and the individual property aspects (Sirmans, Sirmans and Beasly, 1986; Sivitanides and Sivitanidou, 1996, 1999; Chichernea, Miller, Fisher, Sklarz and White, 2008; McDonald and Dermisi, 2008). However the influence of property characteristics consisting of efficiency factors was not in the focus of the analysis. In fact resent research on sustainability in the valuation process basically relies on theoretical articles. Therefore this paper provides the first empirical data of efficiency aspects in property valuation practices.

Theory of property specific risk as the Theoretical Framework

The aforementioned biased perspectives interact in the valuation of the properties as efficient buildings should realize higher capital values as non-efficient buildings since efficiency reduces the property specific risk. Therefore the capitalization rate as all risk yield can be taken as indicator for the individual property to reflect the risks of being (non-) efficient.

Calculating property worth should reflect all the risk factors including the risk-free investment as baseline to which property-specific and property-market-specific risks are added (Royal Institution of Chartered Surveyors, 1997, pp.25-6; Lorenz and Lützkendorf, 2008). Property efficiency can be seen as property-specific as well as property-market-specific risk e.g. increasing legislative restriction or failure to relet. Therefore the risk of non-efficiency should be reflected in a risk premium on the risk-free rate (Sayce, Walker and McIntosh, 2004).

So the first hypothesis relates to the capitalization rate as indicator for the property specific risk (Endogenous latent variable).

H1: A high property specific risk results in a higher risk premium on the risk-free rate.

Another factor which has to be taken into consideration of the property specific risk is the individual lease contract underlying the valuation of the property. On the one hand there are the tenant demands for more flexibility in the lease contracts resulting in greater uncertainty in the cash flows and higher initial rent which will need to be to compensate for this uncertainty. On the other hand there is the impact on the capital value of the property once new terms and rents have been agreed on the flexible lease pattern (French, 2000).

H2: Higher uncertainty of the cash flows resulting from conditions of the lease contract the increases the property specific risk.

Quality and profit are often considered to be connected as high quality properties may be thought to lead to better returns. However, design factors – especially plan layout – are more important than durability and other factors related directly to cost (Baum, 1993).

H3: Higher quality of the property reduces the property specific risk.

The aforementioned integration of efficiency in the valuation process is closely connected to the definition of market value. Thereby the International Valuation Standards Committee sees the concept of *highest and best use* as "fundamental and integral part of Market Value estimates" (International Valuation Standards Commitee, 2005, p.29; Lorenz and Lützkendorf, 2008) whereas the Appraisal Institute indicate that it "can be described as the foundation on which market value rest" (Appraisal Institute, 2001, p.305; Lorenz and Lützkendorf, 2008). Within the last years the term "highest and best use" so far defined in international valuation standards as "the most probable use of a property which is physically possible, appropriately justified, legally permissible, financially feasible, and which results in the highest value of the property being valued" (International Valuation Standards Committee, 2005, p.29) was discussed in various articles and is marked by a considerable evolution in its meaning. While early use of this term just involved the decision of individuals and groups of how to utilize a parcel of land current definitions even indicate a replacement of "highest and best use" by the expression "most probable use". For researchers "highest and best use" not only covers the maximization of profit but also the interaction of users, producers and third parties (Thair, 2001) This emphasizes the necessity to take all the different aspects into consideration when evaluating a property as real estate use is affected by various interests (Graaskamp, 1977).

H4: The more efficient the property the less is the property specific risk

An owner's monetary benefit from improved property quality is also greatly related to longer lease periods and higher rents. When tenants stay longer in the same facility there is less empty office space and less need for alterations by new tenants (Saari and Takki, 2008; BOMA, 1999, Gat, 1998).

H5: Improved property quality positively influences the conditions of the lease contract.

As aforementioned there are indications that tenants are interested in greening their leases (Miller and Buys, 2008; Kahn, 1999; O'Roarty, 2001). Therefore the next hypothesis relates to the property efficiency indicated in the lease contract.

H6: More efficient properties will result in greener lease contracts.

The property quality has a direct connection to the overall property efficiency as higher quality leads to improved property operations and utilizations.

H7: The higher the property quality the more efficient is the property.

Indicators of the exogenous and endogenous latent variables

The lease contract structure (Block 2)

The main risks of the lease contract which have to be taken into consideration when evaluating a property are the remaining years of lease contract as well as the actual generated net rent. Over rented leases might have positive influence on the current cash flow but they also imply a potential reversion to the lower market rent after the expiration of the contract. This risk increases with shorter remaining years of the lease contract.

H8: The lease contract states the overall duration of the lease agreement and potential options for the tenants. Therefore the remaining years of lease contract at the date of the property evaluation have to be considered at potential risk.

H9: The net rent based on the agreements in the lease contract will influence the future cash flow if relative higher net rents can be realized at the date of the last rent review.

The property quality (Block 3)

The main indicators of the property quality can be found in the age of the building as well as the overall condition. Generally buildings are constructed on the basis of the present restrictions but the requirements in terms of technical standards increase or demands on the layout change with the times. Therefore older properties might not fulfill today's standards or occupier's demands. In addition the property's overall condition demonstrates the level of necessary improvements to cope with the market requirements.

H10: Properties of lower quality are typically older than properties of higher quality.

H11: Increasing property quality is an indicator of better overall conditions.

The property efficiency (Block 4)

There are several criteria which influence the efficiency of a property. The main driver can be found in the total occupancy costs per sqm[1] (IPD, 2006).

H12: The efficiency of a property depends on its location.

H13: The lower the total occupancy costs the more efficient is the property.

H14: Smaller properties or smaller rental areas can be used and operated more efficiently.

H15: A low vacancy rate indicates highest and best use of the premises.

[1] Definition of Total operating costs per sqm according to the IPD International Total Occupancy Cost Code (ITOCC): consolidated service charge, insurance, internal repair and maintenance, M&A repair and maintenance, external/structural repair and maintenance, minor improvements, internal moves, reinstatement, security, cleaning, waste disposal, internal plants and flowers, ground maintenance, water, sewerage and energy (IPD, 2006).

Exhibit 2 Research Model

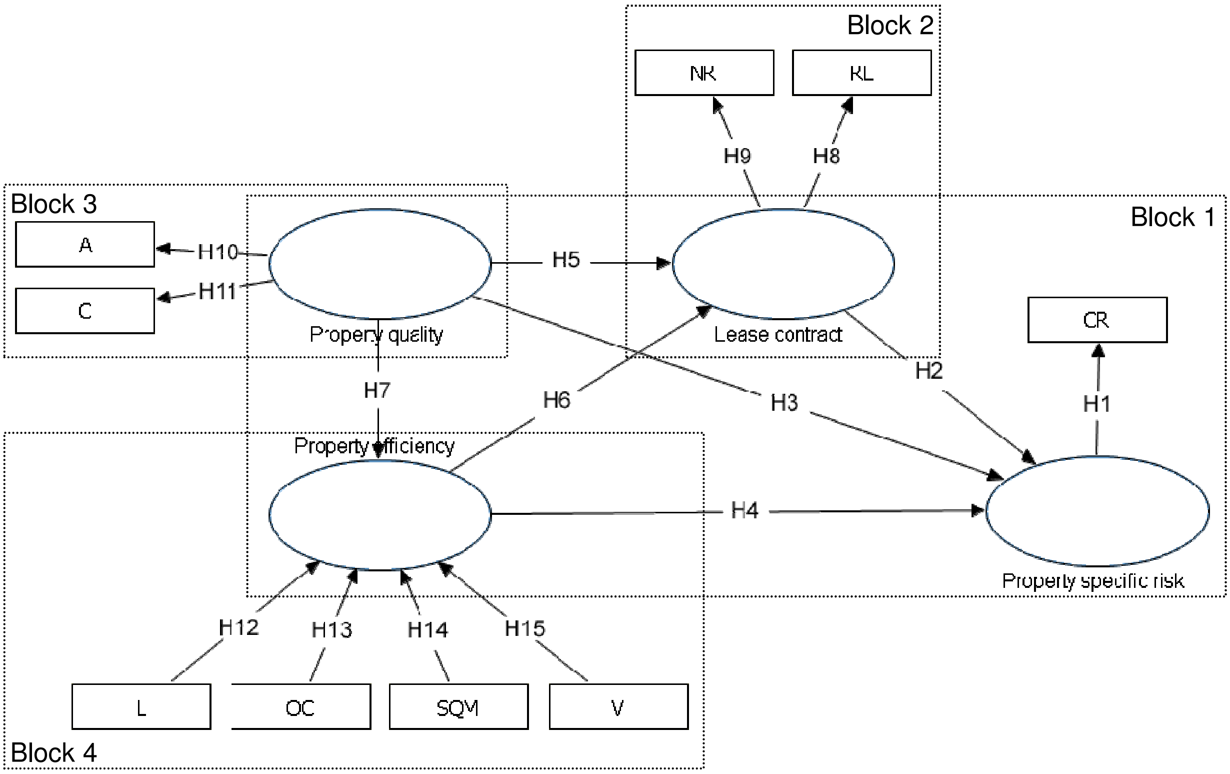


Table 1 Construct Definitions and Sources

Construct	Definition	Source that Inform Construct
Lease contract	Individual conditions of the lease contract	French, 2000
Net rent per sqm (NR)	Net rent per sqm as relative difference to IPD mean at date of last rent review	Fürst and McAllister, 2008; Miller, Spivey and Florance, 2008b; Eichholtz, Kok and Quigley, 2009; Pivo, 2008; Pivo and Fisher, 2009
Remaining years of lease contract (RL)	Remaining years of individual lease contract	
Property quality	Overall quality of the property	Baum, 1993
Age (A)	Age of building at date of valuation	
Condition (C)	1 = very good condition 2 = good condition with minor improvements 3 = bad condition with major improvements	French and Wiseman, 2003
Property efficiency	Overall property efficiency as relative difference to the relevant IPD mean	
Location (L)	1 = London 2 = big cities (biggest 8 cities in the UK excl. London) 3 = small cities	
Total occupancy costs per sqm (OC)	Total occupancy costs per sqm for the property as relative difference to the relevant IPD mean	Lorenz and Lützkendorf, 2008; IPD, 2006
Rentable area (SQM)	Total rentable area of the property	
Vacancy rate (V)	Economic vacancy rate (in % of income)	French and Wiseman, 2003
Property specific risk	The property specific risk	Lorenz and Lützkendorf, 2008
Capitalization rate (CR)	relative difference between the "risk-free rate" (10 years UK gilts) and the calculated capitalization rate of the valuer for the individual property	Sayce, Walker and McIntosh, 2004

3. Research Method and Data Collection

The aim of this paper is to find whether significant differences in the risk premiums on the capitalization rates occur between efficient and non-efficient properties. Therefore 47 office buildings in the UK were investigated for the years 2007 and 2008. The data on property and lease contract levels were obtained from the IPD Investment Property Databank Ltd. including information from the investors (IPD PAS Databank) and the occupiers (IPD Occupier Databank) of the buildings.

<u>Descriptive Statistics</u>

Table 2 Descriptive Statistics (2007)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Cap rate	47	-4,00	77,00	30,72	19,46	,13	,35	-,45	,68
Total occupancy costs	47	-82,00	187,00	-5,72	48,65	1,74	,35	5,29	,68
net rent	47	-96,00	449,00	72,91	106,10	1,75	,35	3,47	,68
remaining years of lease contract	47	1,00	899,00	32,62	131,17	6,55	,35	43,95	,68
age	47	1,00	207,00	67,02	52,49	,93	,35	,46	,68
vacancy rate	47	,00	1,00	,02	,15	6,86	,35	47,00	,68
rentable area	47	203,00	47098,00	4145,36	8532,86	3,67	,35	14,96	,68
Valid N (listwise)	47								

Table 3 Descriptive Statistics (2008)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
cap rate	47	8,06	273,28	154,74	51,43	-,67	,35	1,39	,68
total occupancy costs	47	-79,10	246,68	7,72	54,08	2,07	,35	7,62	,68
net rent	47	-86,94	444,55	84,69	112,53	1,58	,35	2,50	,68
remaining years of lease contract	47	,00	898,00	31,64	131,16	6,55	,35	43,96	,68
age	47	2,00	208,00	68,02	52,49	,93	,35	,46	,68
vacancy rate	47	,00	49,70	2,22	9,35	4,45	,35	19,54	,68
rentable area	47	203,00	47098,00	4145,36	8532,86	3,67	,35	14,96	,68
Valid N (listwise)	47								

In addition a Kolmogorov-Smirnov has been performed to test of normal distribution of the underlying data helping to identify the most suited analytical method for the hypothesized relations. From the results shown in Table 4 it can be concluded that there is no normal distribution of the variables as the significance level of each parameter is about null.

Table 4 Test of normal distribution (2007)

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cap rate	,084	47	,200*	,980	47	,575
Total occupancy costs	,145	47	,014	,853	47	,000
net rent	,194	47	,000	,832	47	,000
remaining years of lease contract	,468	47	,000	,206	47	,000
age	,143	47	,018	,903	47	,001
vacancy rate	,537	47	,000	,131	47	,000
rentable area	,322	47	,000	,487	47	,000

a. Lilliefors Significance Correction

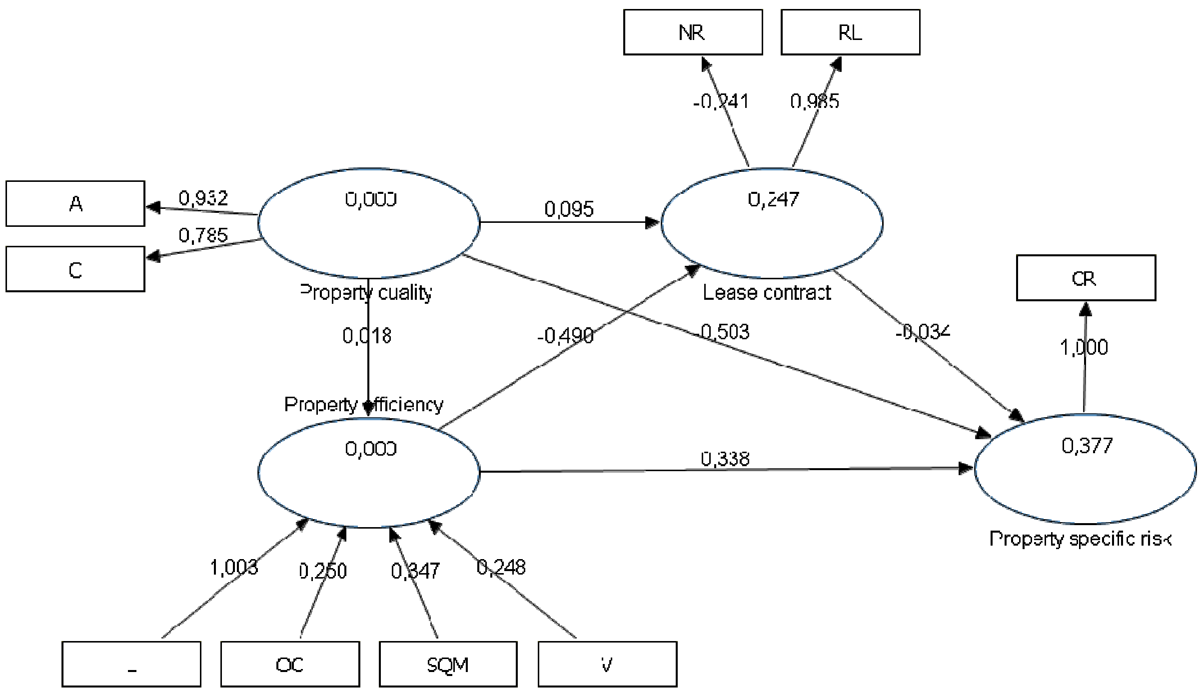
*. This is a lower bound of the true significance.

Partial least squares (PLS), which uses component-based estimation, maximizes the variance explained in the dependent variable, does not require multivariate normality of the data, and is less demanding on sample size (Chin, 1998; Marcoulides and Saunders, 2006; Marcoulides, Chin and Saunders, 2009). For these reasons, SmartPLS was used for the data analysis. All generated outputs are displayed in the following section.

4. Data Analysis and Results

Before applying the research model to both years under consideration the structural model has only been calculated for the year 2007 to verify the overall construct. Exhibit 3 illustrates the result of the structural model for the year 2007.

Exhibit 3 Structural Model (2007)



For all constructs, the internal consistency and convergent validity were evaluated by examining the indicator-construct-loading, composite reliability, and average variance extracted (AVE) (Ringle, 2004a; Fornell and Larcker, 1981) as shown in Table 5.

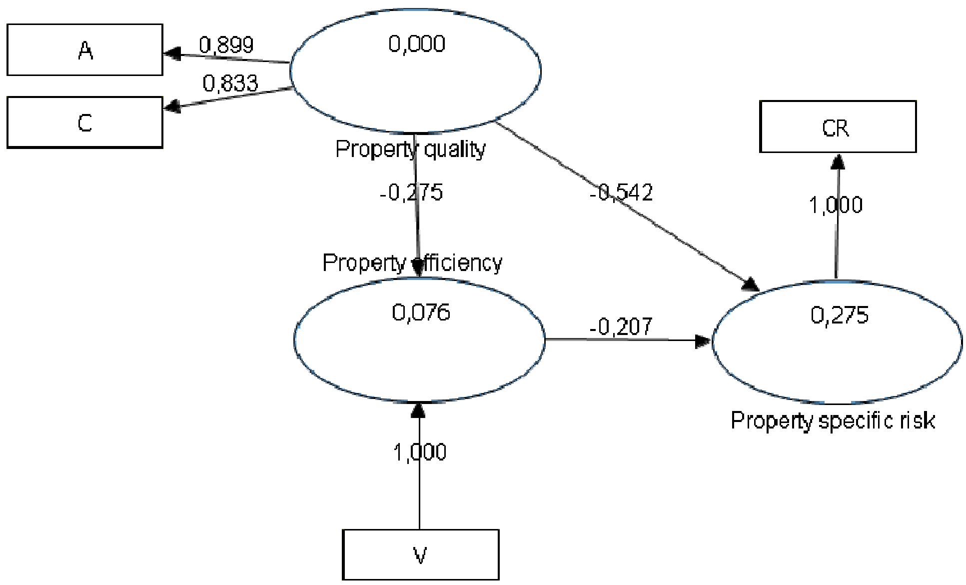
Table 5 Reliability of construct – structural model (2007)

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality
Lease contract	0,514	0,363	0,247	-0,152	0,514
Property efficiency	0,000	0,000	0,000	0,000	0,231
Property quality	0,743	0,851	0,000	0,674	0,743
Property specific risk	1,000	1,000	0,377	1,000	1,000

Due to the extracted results and the inconsistency of the research model further modifications need to be applied to guarantee reliable results. As it can be seen in Exhibit 3 only a limited number of indicators are significant while others are nonsignificant. Therefore retaining solely the indicators where the λ-loading (bivariate correlation) between the indicator and its construct is significant (λ >0.6) has been considered (Wold, 1980; Cenfetelli and Bassellier, 2009; Homburg and Baumgartner, 1998). Also constructs with an AVE of less than 0.6 indicate a low quality of the measurement and are therefore excluded (Homburg and Baumgartner, 1998).

Based on the quality criterion of the PLS-method (Ringle, 2004b) further calculations and necessary modifications have been operated leading to the modified structural model displayed in Exhibit 4.

Exhibit 4 Modified structural model (2007)



Reliability

To verify the internal consistency of the model the interrelatedness among the items is determined. As it can be seen in Table 6 the Composite Reliability for each reflective construct shows values of 0.8 and above and is therefore higher than the required 0.7 which means that there are uncorrelated errors in the measurement. At the same time the Composite Reliability is higher than Cronbach's Alpha values, another indicator for the above assumption.

Table 6 Reliability of construct – modified structural model (2007)

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality
Property efficiency	0,00	0,00	0,08	0,00	1,00
Property quality	0,75	0,86	0,00	0,67	0,75
Property specific risk	1,00	1,00	0,28	1,00	1,00

Also the Cronbach's alpha by itself provides the lower-bound estimate for the composite score reliability with values of 0.67 and above.

Discriminant Validity

The analysis of the correlation between the measures is based on the comparison of the loadings shown in Table 7 and cross-loadings which can be found in Table 8.

Table 7 Outer loadings (2007)

	Property efficiency	Property quality	Property specific risk
A	0,00	0,90	0,00
C	0,00	0,83	0,00
CR	0,00	0,00	1,00
V	1,00	0,00	0,00

The standardized loadings are all above 0.7 and therefore support the validation of the reflective model. The cross loadings of the direct effect model are less than the outer loadings given prove that there is no multicollinearity.

Table 8 Cross loadings (2007)

	Property efficiency	Property quality	Property specific risk
A	-0,16	0,90	-0,52
C	-0,33	0,83	-0,30
CR	-0,06	-0,49	1,00
V	1,00	-0,28	-0,06

Another determinant to quantify the degree to which two measures designed to measure similar or conceptually related constructs are distinct can be found in the comparison of the square root of the AVE with the inter-construct correlations in the reflective model. Table 9 indicates that the square roots of the AVE (bold numbers) with values above 0.8 are higher than the variable correlations and therefore verify the assumption that there is no relation.

Table 9 Discriminant validity (2007)

	Property efficiency	Property quality	Property specific risk
Property efficiency	**0,000**	0,000	0,000
Property quality	-0,275	**0,867**	0,000
Property specific risk	-0,058	-0,485	**1,000**

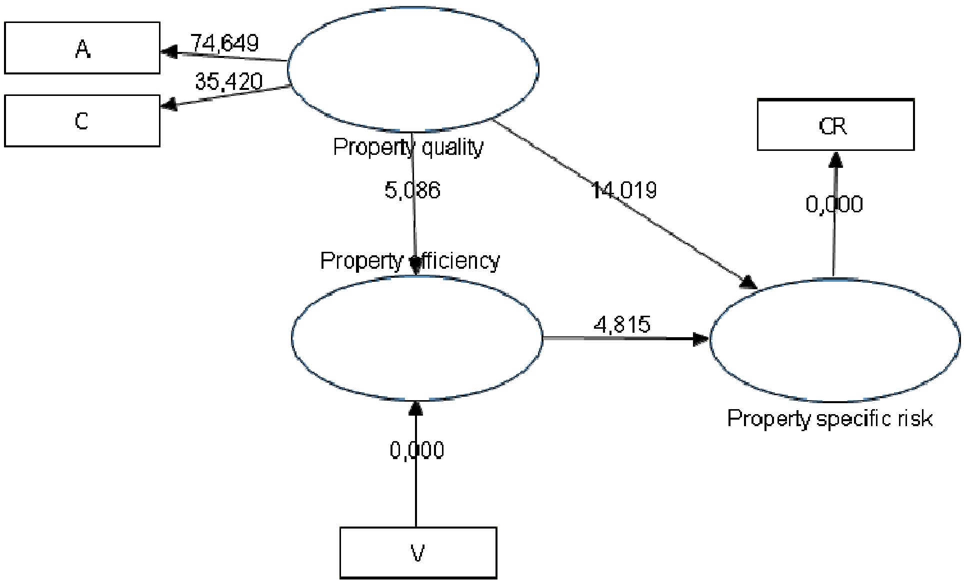
Convergent Validity

Another analysis of the AVE is used to determine whether two different measures of the same construct are highly correlated. The convergent validity expressed by the AVE indicates adequate convergent validity with values of 0.7 or higher which can be withdrawn from Table 6. Furthermore the loadings for the reflective exogenous constructs as well as for the endogenous construct are all above 0.7 given evidence that the main part of the variance in the variables age or condition can be explained by the construct property quality (for the exogenous constructs) and in the capitalization rate by the construct property specific risk (for the endogenous construct).

Structural Model Evaluation

To evaluate the significance of the relations between the constructs of the model and the calculated weights the bootstrapping method is used. This non-parametric process allows assessing the quality of the PLS model without making any distribution assumptions (Bollen and Stine, 1993; Efron and Tibishirani, 1993). Exhibit 5 displays the results of estimating the distribution of the statistic by using the bootstrapping method. The calculation is based on 300 cases and 500 samples.

Exhibit 5 Bootstrapping (2007)



As it can be seen from Exhibit 5 and Table 10 the relations between the indicators age and condition and the endogenous variable property quality are significant with values of 35.4 and above.

Table 10 Mean, STDEV, T-Values (2007)

	Original Sample (O)	Sample Mean (M)	Standard Deviation	Standard Error	T Statistics (|O/STERR|)
A <- Property quality	0,899	0,900	0,012	0,012	74,650
C <- Property quality	0,833	0,833	0,024	0,024	35,420
CR <- Property specific risk	1,000	1,000	0,000	0,000	0,000
V -> Property efficiency	1,000	1,000	0,000	0,000	0,000

The results for the T statistics which can be found in Table 10 in combination with the R^2 value of 0.275 from Exhibit 5 indicate a good fit of the model with GoF = 0.401 explaining the degree of variability of the dependent variable. Also the standard errors with values <0.04 suggest a low level of uncertainty.

Table 11 Effect analysis (2007)

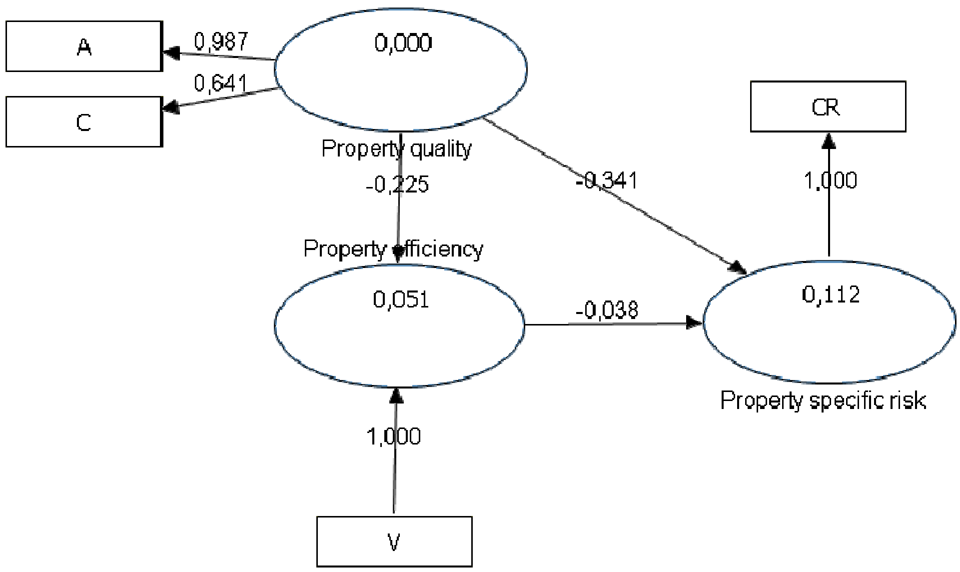
	T-Statistics	f^2	q^2
Property efficiency	5,542	0,088	0,088
Property quality	13,454		

$R^2 = 0.275$ $Q^2 = 0.267$ GoF = 0.401

To evaluate the overall structural model the coefficient of determination (R^2) has been calculated as "[…] the case values of latent variables are determined by the weight relations" (Chin and Newsted, 1999). Due to the value of $R^2 = 0.275$ the result can be interpreted as "low to medium" (Chin, 1998). This result is supported by the calculated effect size (f^2) which also can be seen as a "low to medium" effect (Cohen, 1988) indicating that the independent (exogenous) latent variable does not have a substantial influence on the dependent (endogenous) latent variable (Chin, 1998; Ringle, 2004a). The fraction of variation of the response that can be predicted by the model (Q^2) possesses a value of $Q^2 = 0.267$ and is therefore above null suggesting a good model with predictive power (Chin, 1998). Q^2 can be used to identify the relative influence on the endogenous latent variable in the structural model shown by the calculated q^2 evaluating the relative impact of the structural model on the observed measures for each dependent LV. The calculated q^2 shows an impact of 0.088. By calculating the f^2 as well as the q^2 it become obvious that there is a bigger role in explaining than in predicting as $q^2 < f^2$. Table 11 shows the results for the inner block structure as well as for the overall model. Furthermore the calculated GoF (.401) is higher than the marginal value of > .275 indicating that the model strongly fits the set of observations.

But there is evidence that the quality of the model and the relations between the variables and their indicators decreases when calculating the modified structural model for the year 2008. This year was remarkable governed by the effects of the financial crises. As it becomes obvious from Exhibit 6 the coefficient of determination (R^2) falls to a value of 0.112 indicating a "low" (Chin, 1998) level of assertion for the model. With loadings of 0.64 and 0.99 for the indicators age and conditions the exogenous variable property quality is as strong as before. But the two exogenous latent variables property efficiency and property quality suffer in explaining the endogenous latent variable property specific risk.

Exhibit 6 Modified structural model (2008)



Although the reliability of the construct as it can be found in Table 12 holds for the overall modified model in 2008, the explanatory power is considerably limited.

Table 12 Reliability of construct (2008)

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality
Property efficiency	0,00	0,00	0,05	0,00	1,00
Property quality	0,69	0,81	0,00	0,67	0,69
Property specific risk	1,00	1,00	0,11	1,00	1,00

In total, the results support 7 of 15 hypotheses (Table 13). Contrary to the expectations, occupancy costs had no impact and the overall impact of the exogenous latent variables was quite low.

Table 13 Hypotheses Testing Results

Type of Hypothesis	Supported	Not supported
Indicators -> latent variable	H1: Property specific risk-> CR H10: A->Property quality H11: C->Property quality H15: V->Property efficiency	H8: Lease contract-> RL H9: Lease contract-> NR H12: L->Property efficiency H13: OC->Property efficiency H14: SQM->Property efficiency
Exogenous -> exogenous variable	H7: Property quality->Property efficiency	H5: Property quality->Lease contract H6: Property efficiency-> Lease contract
Exogenous -> endogenous variable	H3: Property quality-> Property specific risk H4: Property efficiency-> Property specific risk	H2: Lease contract-> Property specific risk

5. Summary, Limitations and Outlook

The results thus provide evidence that so far property efficiency criteria rarely have been taken into account in the valuation process when deducing the adequate capitalization rate. However, the property quality which is driven by the age as well as the condition of the property explains at least a small proportion of the property specific risk compared to the exogenous variable property efficiency. This variable is solely defined by the vacancy rate and therefore referring to the highest and best use definitions. But surprisingly the total occupancy cost as the main factor to evaluate a property's efficiency is totally ignored. This becomes more obvious in years which are influenced by major changes in the market conditions as in 2008.

Although it is the first paper linking the investor's and the occupier's view, as a matter of fact, however, the limitations of this research model are up to the limited number of the underlying dataset. To enhance the assertion of the construct future research with an increased number of observations might increase the power of the results found in this analysis. Furthermore, it remains to be seen what is going to happen in coming years regarding the development of a sustainable property market. Once the effects of the subprime crisis calm down, the importance of property efficiency might arise again becoming even more considerable as before.

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