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Do sustainability attributes influence the valuation of German office buildings?

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Extended Summary

The interest in sustainable and energy efficient buildings has been increased over the last years due to global changes with regard to ecological, economic, political and social issues. Nevertheless, awareness regarding the effect of sustainability issues on property value on the German real estate market is still limited. Against this background, the effects of currently emerging long-term developments such as global climate change, ageing society or rising energy prices are not or only insufficiently taken into account in common property valuation methods employed today, even though they can significantly affect the long-term value of a property. However, recent research findings underlined sustainable properties that can handle long-term changes of exogenous framework conditions will be marketable in the future and maintain their value as well. Nevertheless, currently a method for measuring sustainability attributes in German real estate does not exist.

Considering this, it seems necessary to define sustainability attributes of properties from a financial point of view and then to quantify their financial value. The basis of the sustainability attributes consists of a holistic view of the three dimensions of sustainability: environment, economy and society. From a financial perspective, the economic dimension is at the foreground; thus the focus is on the long-term economic success of a property which is the long-term performance.

The aim of this study is set to develop a sustainability indicator which supplements the German income capitalization approach and the discounted cash flow (DCF) method by

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value-relevant data of property´s sustainability attributes: The German Economic Sustainability Indicator (ESI Germany). On the occasion of different national standards, restrictions, market behaviors and employed methodologies, the object of investigation is narrowed to the valuation of German office buildings. The sustainability indicator shall measure the risk or the opportunity of a property due to changes in long-term developments to depreciate or gain in value. It is then integrated into the valuation with the German income capitalization approach and the DCF method. Thus, the long-term value of a property can be measured and assessed more transparently by including and integrating further information of value-related sustainability attributes of a property.

In Switzerland, a sustainability indicator, the so-called CCRS Economic Sustainability Indicator (ESI)[3], was developed based on national data and is therefore only applicable to the Swiss real estate market. This indicator forms the basis for the development of ESI Germany, which is developed with the participation of experts from practice and research. The approach and methodology for the development of the sustainability indicator is divided into four modules: In the first module, various scenarios of ecological, economic, political and social framework conditions are identified and analyzed. Only those exogenous framework conditions, where the development of the condition affects the value of a property and the trend is clear are selected and followed up. The clear direction allows forecasts of the effect on the value of property: It can be assumed that these changes can result in different requirements for properties and, account on this, effect the property value. Furthermore, they will give evidence of the risk of a property depreciating value or the opportunity of gaining value due to these developments. Subsequent in the second module, the value-related sustainability attributes of a property are derived from the qualitative long-term changes in relevant exogenous framework conditions. This is based on an observation period of 40 years. Long-term changes of exogenous framework conditions can result in qualitative or quantitative changes. Quantitative changes result in changes of the number in supply or demand whereas qualitative changes arouse a shift of supply or demand for properties with destined property attributes. It can be assumed that these property attributes gain in importance in the future as well and resulting a higher or at least constant property value. The third module consists of the operationalization of the identified value-related sustainability attributes. This includes the definition and coding of sub-indicators in consideration of the German standards and laws. Adopting a risk-based weighting model (scenarios,

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[3] Meins, E. and H. Wallbaum, R. Hardziewski, A. Feige (2009) Sustainability and Property Valuation - A Risk-Based Approach. CCRS Working Paper Series Working Paper No. 05/09. CCRS, Zürich, December 2009.

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probabilities of occurrence, proportion of the property value), the weighting of the sub-indicators and sustainability attributes, is defined in the fourth module. After being combined to a comprehensive indicator, the weight of any involvement in the German income capitalization approach and the DCF method is determined. Finally, the robustness of the weights is tested through sensitivity analysis. Accompanying the development of the sustainability indicator, practical tests are conducted to assess it on properties. Therefore, the project partners, experts from practice, test the identified sustainability attributes on properties in their portfolio by the means of property documents, interview with the facility manager and property inspections. This approach enables a continuous optimization of the indicator as well as a review of the indicator's application on its plausibility, practicability and transparency. As the first approach of the sustainability indicator´s integration in the German income capitalization approach and the DCF method, an involvement as risk premium in the discount rate or capitalization rate when considering property risk is intended. Besides, it shall be analyzed if further opportunities exist to integrate value-related sustainability aspects in the German income capitalization approach and the DCF method. Therefore the revenues and expenditures (cash flow) shall be considered.

As first results, 35 sub-indicators in five groups of sustainability attributes are identified which are being tested in practical tests:

- Flexibility and adaptability
- Energy and water dependency
- Accessibility and mobility
- Security
- Health and comfort.

They are derived from the analysis of long-term changes of various scenarios such as following scenarios:

- Economy: GDP, number of working population, unemployment rate, construction price indices, new technologies etc.
- Politics: Rent law, scope of rent price formation, intensification of laws regarding energy efficiency etc.
- Society: Population development, old age dependency ratio, health awareness, quantity and attractiveness of public transport etc.
- Environment and energy: global warming, greenhouse effect, risk of natural hazards, new construction materials, water charges, prices of fossil energy sources and electricity etc.

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In consequence of the demographic change it can be assumed that the population structure and the number of working population will change in the long-term. On this account, it can be assumed that enhanced flexibility and adaptability of a property will attach greater importance in the future. Flexibility and adaptability can be assessed by sustainability sub-indicators such as flexibility of the constructional design and building services, floor height, accessibility of the property etc. On the example of the property´s flexibility of the constructional design, the assessment can be done as follows:

- 10 (advantageous characteristic)   = Flexible space arrangement / separate structural system
- 5 (average characteristic)   = Adaptable space arrangement with constructional measures
- 0 (disadvantageous characteristic) = Fixed space arrangement / not variable.

Within the next months, the weighting of the sustainability attributes and the definition of the sustainability indicator´s integration into the valuation methodologies will be determined.

As final result, a list of weighted sustainability attributes and sub-indicators is expected. The sustainability attributes and sub-indicators shall measure the risk of a property depreciating value or the opportunity of gaining value due to long-term developments. This forms the German Economic Sustainability Indicator, ESI Germany, and can be used by property evaluators, investors, owners etc. when assessing the property value with the German income capitalization approach and the DCF method. By the means of this study, sustainability issues which are either not or only insufficiently taken into account, can be thus regarded and integrated into the assessment that results in more transparent evaluations.