ECONOMICS
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THE APPLICATION OF INCOME APPROACH IN PROPERTY VALUATION IN POLAND[1]

ABSTRACT. The income approach is mainly applied in calculating market value of properties, which earn or might earn income. The approach may also turn useful in the process of estimating the non-market value of a property (e.g. mortgage lending value). Calculating market value with the application of the subject approach means estimating the market value of the right to receive infinite income flows. However, the correctness of calculations depend on the correct estimation of rental rates, capitalization rates, discount rates, and other parameters reflecting the market segment represented by a valued property.

Introduction

Under the system transformations in Poland and the implementation of free market economy (also in the property management field), the role of valuation of various assets has increased. The demand for valuations stems either from laws and regulations, or from other conditions aimed at minimizing risk in the decision-making process on the capital market, as well as in the private and public property management and administration.

Property valuation may be defined as "a procedure aimed at determining the value of a property". The procedure is undertaken by a property valuer[2], who independently develops an opinion called a valuation survey (*AmE appraisal report*).

The appropriate rules and valuation procedures are important factors when determining the accuracy of a property survey.

This paper presents the definitions and categories of property values, as well as the current property valuation methodology legally binding in Poland. Due to the scope of the study, only the assumptions and basis of the applied approaches have been discussed, with a special focus on the income approach.

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[1] The study is based on current regulations of 31.01.2010 r.

[2] Property valuer is a licensed person authorized to carry out property valuation. The licence is granted under a procedure established by legislation (Property Management Act, art. 191 – 197)

1. Types of property value

The notion of value occurs in various fields of study. The economic value (as a set of features of a good) is characteristic for commodities which are:

- useful
- rare
- accessible.

In economics, two views on value-generating sources are distinguished, i.e. the production sphere and the exchange sphere.

In the exchange sphere, the value of a given commodity is determined by the cost of production factors used in the process of manufacturing the good. The cost of manufacturing is not considered from the historical point of view (i.e. what the usage was), but from the reproduction aspect (what expenditures have to be incurred to reconstruct the particular commodity. The value of a commodity is created via reconstruction of valuations of each production factor used in the process of manufacturing goods, i.e. work, capital and land[3].

The theory of expenditure-based value does not involve the market environment, i.e. the supply and demand relation (correlation between the amount of goods that buyers are willing to purchase at a particular price, and the amount of a product producers are willing to sell at a given price).

Market value is created in the exchange sphere, where supply and demand relations are of significant importance. It is determined by market participants' behavior. A commodity, whose value is calculated as a reproduction cost in the production sphere, may be of lower or higher value in the exchange sphere. The difference lies in the relation of demand and supply for a given commodity. In the market economy, value is often referred to as an interaction between supply and demand. Economic value may be measured in terms of price, yet the price and value are not always equal, as they pose two different economic categories. When properties are concerned, the reason for the price and value divergence may be:

- changes of demand and supply over time, occurring in a given market segment and market area,
- buyers' or sellers' irrational behaviour,
- market participants' negotiating skills,
- type of sale,
- transaction terms,
- law and regulations concerning property sale, especially public properties.
  The indications of economic value of properties are often as follows:
- value in use – defined as the objective want-satisfying power of a good (property),
- exchange value – represents the relation, where one commodity is exchanged for another one,
- rental value – determined by the amount that would be paid for a one-year rental of a property,
- reproduction cost – defined as the cost of reproduction less depreciation,
- market value – discussed extensively in the study,
- mortgage lending value – defined in The Act on Mortgage Bonds and Mortgage Banks[4]. In the process of granting loans, it should be calculated with respect to risk that properties entail. The value represents i.a. long-term factors affecting the value,

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[3] E. Kucharska-Stasiak, Nieruchomość a rynek, PWN, Warszawa 2005, p. 104
[4] The Act on Mortgage Bonds and Mortgage Banks (consolidated text in journal of laws *Dziennik Ustaw* of 2003, No. 99, item 91)

which means that it should be calculated cautiously and no market turbulence should be taken into consideration,
- cadastral value – value calculated from information held in the Property Cadastre. The value will be the tax base of property tax. For the time being, the property tax is calculated on the basis of usable area (computed in m^2), with the exception of the structure tax,
- fair value – described in The Accounting Act of 29 September 1994[5], which alludes to the International Financial Reporting Standards. This value has been defined as "the amount at which the asset could be exchanged in a free market or the amount for which a liability could be covered between the interested and well-informed parties"[6],
- insurable value – takes reproduction cost or replacement cost as a basis for calculations,
- investment value (or individual value) – it is a value of a property reflecting a particular investor's benefits. While calculating the value, the investor's expectations and plans for the development of the property are taken into consideration, especially rental rates, operating expenses, vacancy rates, property financing, and management type.

As shown above, there are numerous value categories in valuation theory and practice. Moreover, their definitions vary depending on the country, its level of market development and fields of application. Therefore, some standardization of the applied terms is needed[7].

The definition of market value established in Poland (effective as of 1.06.2009) encompasses regulations of the International Valuation Standards (IVS), the European Valuation Standards (EVS) and the EU directives.

According to the Basic National Valuation Standard No.1, item 1.2, market value is "the amount of money, which may be obtained from sale of a property in the market, in terms described in the market value definition".

Market value (Basic National Valuation Standard, item 3.1) is the estimated amount for which a property should exchange on the date of valuation on the following conditions:
1. the transaction is conducted between a willing buyer and a willing seller,
2. the transaction is arm's-length,
3. the parties act without compulsion,
4. the parties act knowledgeably and prudently,
5. the transaction takes place after proper marketing.

The definition mentioned above is in compliance with market value definitions stipulated in the International Valuation Standard No.1 – "market value basis of valuation" (IVS1), and European Valuation Standard No.1 "market value" (EVS1).

A detailed interpretation of the definition is as follows:

"The estimated amount" – refers to a price expressed in terms of money, measured as the most probable price reasonably obtainable in the market on the date of valuation. It is the best price reasonably obtainable by the seller and the most advantageous price reasonably obtainable by the buyer. This estimate specifically excludes an estimated price inflated or deflated by special terms or circumstances (such as selling by tender).

The term *"on the date of valuation"* requires that the estimated market value is time-specific as of a given date. The valuation amount reflects the actual market state and circumstances as of the effective valuation date.

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[5] The Accounting Act of 29.09.1994 (consolidated text in journal of laws *Dziennik Ustaw* of 2002, No. 76, item 694)

[6] J. Konowalczuk, Wycena nieruchomości przedsiębiorstw, C. H. Beck publishing, Warszawa 2009, p. 198

[7] European Valuation Standards 2009 TeGoVa, International Valuation Standards 2007, IV SC

"A property should exchange" refers to the fact that the value of a property is an estimated amount rather than a predetermined amount or actual sale price. It is the price at which the market expects a transaction should be completed on the date of valuation.

The term "between a willing buyer and a willing seller" refers to a buyer who is motivated to purchase in accordance with the realities of the current market, and a seller who is motivated to sell the property at market terms for the best price attainable in the open market.

"In an arm's-length transaction" refers to a transaction conducted between parties who do not have a particular or special relationship (for example, family, official subordination etc.) that may make the price level uncharacteristic of the market.

"The parties act without compulsion (...), knowledgeably and prudently" – establishes that each party is motivated to undertake the transaction, but neither is forced or unduly coerced to complete it. Moreover, it is presumed that both the buyer and the seller are reasonably informed about the nature and characteristics of a property, its actual and potential uses, and the state of the market as of the date of valuation.

The term "after proper marketing" means that the property should be exposed to the market in the most appropriate manner, and for the sufficient exposure period. The length of exposure time may vary with market conditions, but it must be sufficient to allow a property to be brought to the attention of an adequate number of potential purchasers.

Estimating market value as the most probable price attainable requires that the highest and best use of a property is taken into account. It is the basis of market value concept. To estimate market value, a valuer must first determine highest and best use. While determining market value, the valuer assumes that the use of a property is physically possible, appropriately justified, legally permissible, financially feasible, and which results in the highest value of the property being valued.

2. Purpose of valuation

Along with the development of market economy and property market, the range of purposes for which property valuation is necessary, has been increasing. It may result from political, social, economical, or financial background.

In accordance with the Property Management Act of 21.08.1997[8], the valuation must be carried out in the following situations:

- public property sale (properties owned by State Treasury and local governments),
- purchasing properties for public institutions,
- calculating the compensation for the property dispossessions,
- calculating the betterment levy (i.e. charges imposed when the property's value increases due to public projects carried out by the local government and involving infrastructure, land consolidation and partition)
- actualization of charges for rights to continued management of properties, as well as actualization of annual payments for perpetual usufruct,
- abolishing or limiting the rights to the property.

The quoted act comprises relatively comprehensive list of situations, where the property valuation is necessary. However, the legal source mentioned above, does not enlist all the valuation purposes. Other reasons for calculating property value may be related to:

- transfer of rights to property (sale, leasing),
- estimating the in-kind contribution to joint stock or limited companies,
- securing creditors' loans,

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[8] The Property Management Act of 21.08.1997, journal of laws *Dziennik Ustaw* of. 2004, No. 261, item. 2603

- calculating re-zoning fee (related to the change of the property value as a result of changes to or introduction of the Local Area Development Plan),
- property partition or inheritance,
- property insurance,
- the need to carry out financial statement,
- estimating compensation for losses or damages,
- establishing stamp duty rates and taxes,
- estimating compensation for easement by necessity, or property use without title.

Property valuation (due to the functions it serves, i.e. informative and advisory, decision-making, and negotiating), along with globalization process and property market development, is a factor determining the effectiveness of the decisions taken.

3. Property valuation methodology

Valuation types are described in The Property Management Act of 21.08.1997, (consolidated text in journal of laws *Dziennik Ustaw* of. 2004, No. 261, item. 2603) and the Regulation of the Council of Ministers of 21.09.2004 concerning property valuation and conducting valuation survey (journal of laws *Dziennik Ustaw* 2004, No. 207, item 2109)[9]. The Regulation distinguishes approaches, for which there are suitable methods created. The detailed property valuation procedures are called techniques. In accordance with PMA art. 150, item 1, property valuation leads to calculating market value, replacement value, (or other types of value stipulated in various regulations of law), as well as calculating cadastral value.

The legal solutions of the property valuation issues mentioned above, stem from the rules common in the field of valuation, and should be taken into account in the process of property value calculation.

The applied approaches, methods and techniques should:
- provide good market objectivization,
- reflect expectations of the course of events, as well as changes in factors affecting property value,
- reflect property rights occurring in the market, taking into account the characteristics of a property as a commodity,
- reflect the buyers' prudence while negotiating the price, on the basis of information about the sale of comparable properties,
- be the result of calculating costs of investing in other branches of the property market (different from the one represented by the property) or other investment types,
- reflect the rule of final effectiveness of expenditures, which says that an increase in expenditures does not always lead to an increase in value,
- reflect the rule of extra income referring to production factors theory, which says that the extra income less cost of production factors, is attributed to land,
- reflect the highest and best use of a property, and take into consideration the features of the precincts.[10]

The table below presents the classification of valuation approaches, methods and techniques, along with the type of value being the result of the valuation process.

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[9] Regulation of the Council of Ministers of 21.09.2004 (further referred to as Regulation).
[10] Wycena nieruchomości; Polska Federacja Stowarzyszeń Rzeczoznawców Majątkowych, Warsaw 2000, p.55-65

Table 1. Approaches, methods and techniques of property valuation

Type of approach, method and technique / Type of property value	Approach	Method	Technique
Market value	income	investment	direct capitalization
			discounted cash flows
		profits	direct capitalization
			discounted cash flows
	comparative	comparison of pairs	none
		average price correction	
		statistical analysis of the market	
	mixed (conditionally)	residual	none
		cost of liquidation	detailed
			idex
		Estimated land rate	none
Reproduction value	cost	reproduction cost	detailed
			joined elements
			index
		replacement cost	detailed
			joined elements
			index
Non-market property value	approaches, methods and techniques applied in calculating market or reproduction value of properties		

Source: based on the study of the Regulation of the Council of Ministers of 21.09.2004 concerning property valuation and conducting valuation survey (journal of laws *Dziennik Ustaw* 2004, No. 207, item 2109)

4. The essence of income approach[11]

Calculating the income of a property involves the following:
1.   Estimating the potential gross income for a property (PGI)
The income comprises both the rental income and the non-rental one (if there is any). The non-rental income involves e.g. income from hoardings placed on the buildings, mobile communications devices placed on the roofs, or other transmitting devices. While calculating the potential income, the valuer makes an assumption that the whole area of a property generates maximal income over a year.

While calculating market value of a property, one has to analyze the market and estimate the proper rent of a property subject to valuation. It is necessary to:

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[11] Based on M. Trojanek's article "Propozycje określania stopy kapitalizacji i stopy dyskontowej w przypadku braku danych na rynku nieruchomości" ("Suggested ways of calculating capitalization and discount rates when there is no data available on the property market"), in: Methodology of calculating interest rates for the purpose of property valuation and management, XI Academic Conference materials, edit. S Źróbek, Mikorzyn 2003

- define the type and scope of the local market, where the property subject to valuation is placed (e.g. single-family housing, A-class office space),
- decide on the period of the research,
- decide on the property features and their influence on rental rates, e.g. for single-family housing it might be localization, usable floor space, area, development of the plot of land, age and condition of the building.

On the basis of the criteria mentioned above, one may estimate the rental rate for a property being valued.

2.   Estimating vacancies and collection losses.

In economy, the income received by the owner (so called effective gross income) is rarely equal to potential gross income. The amount of lost profit (income) may vary and depends on the vacancy rate and collection losses (rent arrears or lack of payment), the overall economic situation, condition of local market, property type, and opportunity cost.

3.   Estimating effective gross income (EGI). It is the difference between potential gross income and losses due to vacancy rate and tenants' negligence

4.   Estimating operating expenses rate (OpEx). They can be divided into fixed and variable costs. The first do not depend on the vacancy rate. Fixed operating expenses usually include insurance, property security, daily maintenance etc. Variable operating expenses may occur periodically (e.g. cost of heating) or continually (e.g. cost of power and water supply).

Operating expenses include:

- property taxes,
- payments for perpetual usufruct,
- media fees,
- cost of security,
- cost of insurance,
- cost of maintenance and running repairs,
- management cost.

However, the group does not comprise the following:

- depreciation cost,
- value added tax (VAT),
- installments and interests on loans.

5.   Estimating net operating income (NOI), which is a company's effective gross income (EGI) less operating expenses (OpEx).

The process of calculating net operating income in the investment method involves the stages depicted on the diagram below:

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        ┌──────────────┐
        │     PGI      │
        └──────────────┘
               │
               ▼
        ┌──────────────┐
        │  (-) LOSSES  │
        └──────────────┘
               │
               ▼
        ┌──────────────┐
        │    =EGI      │
        └──────────────┘
               │
               ▼
        ┌──────────────┐
        │   (-) OpEx   │
        └──────────────┘
               │
               ▼
        ┌──────────────┐
        │    =NOI      │
        └──────────────┘
```

Diagram 1. Process of calculating net operating income

In the investment method, there are certain changes to the calculation procedure of net operating income. First, the income generated by the user's business activity conducted on the property is estimated (UI). Next, costs of conducting business activity are deducted (BAC), e.g. supply of goods, employees' salaries etc. In this way the user's gross income generated by the business activity conducted on the property is calculated (UGI). After further deduction of operating expenses, the result is user's net operating income (UNOI). While operating expenses are calculated according to the rules applied in the investment method, the income mentioned above is calculated on the basis of market data, as a property owner's share in the income generated by the business activity conducted on the property (UNOI).

The process of calculating net operating income in profits method involves the stages depicted on the diagram below:

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            ┌─────────────────────────┐
            │   Income from business  │
            │    activity conducted   │
            │    on property (UI)     │
            └─────────────────────────┘
                        │
                        ▼
            ┌─────────────────────────┐
            │   - Costs of conducting │
            │  business activity (BAC)│
            └─────────────────────────┘
                        │
                        ▼
            ┌─────────────────────────┐
            │  = User's gross income  │
            │          (UGI)          │
            └─────────────────────────┘
                        │
                        ▼
            ┌─────────────────────────┐
            │   - Operating expenses  │
            │          (OpEx)         │
            └─────────────────────────┘
                        │
                        ▼
            ┌─────────────────────────┐
            │  = User's net operating │
            │      income (UNOI)      │
            └─────────────────────────┘
            ◄───────────┼───────────►
  ┌──────────────┐ ┌──────────────┐ ┌──────────────┐
  │     User     │ │  NOI Owner   │ │   Licensee   │
  └──────────────┘ └──────────────┘ └──────────────┘
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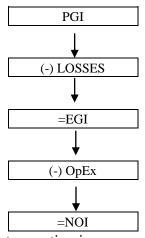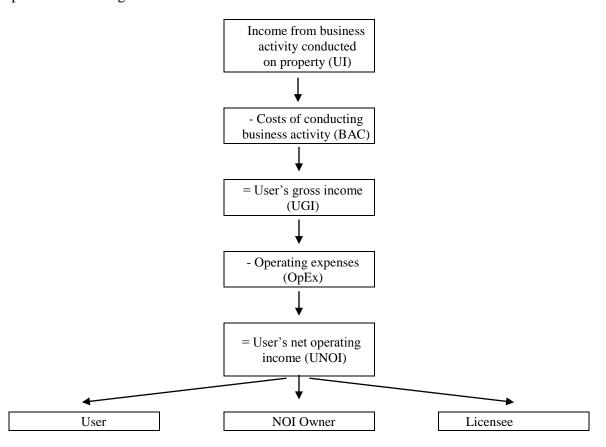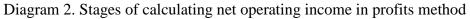
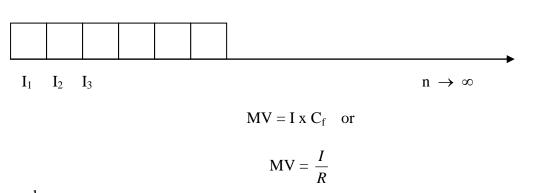Diagram 2. Stages of calculating net operating income in profits method

5. Choice of valuation techniques

Calculation procedures, which lead to converting income from property into value, are called techniques. They are further divided into direct capitalization technique and discounted cash flows technique, where cash flows extend into infinity. In case the income generated by a property varies over periods of time (cash flows are changeable), discounted cash flows technique should be applied.

Property value (on the assumption that the income is constant) is a product of stable annual income flow possible to achieve from a property subject to valuation and capitalization factor, or a quotient of stable income flow and capitalization rate.
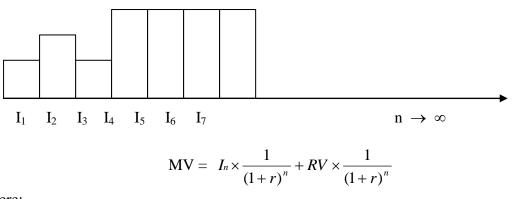
Direct capitalization is applied when a property generates stable income flows over the infinite time horizon. Income generated by a property is measured in real amounts, i.e. inflation is not a diversification basis for cash flows.

$$MV = I \times C_f \quad \text{or}$$

$$MV = \frac{I}{R}$$

where:
$D_1 = D_2 = D_3 = ... = D_n$
C_f – capitalization factor
R – capitalization rate.

In case the income earned by a property is changeable (due to the preplanned activities on a property or the contracts entered), discounted cash flows technique will be used in the process of calculating market value.

Property value is thus estimated as the sum of discounted cash flows possible to achieve in the consecutive years of the forecast period and the discounted residual value. Residual value is the value of a property after the forecast period.

$$MV = I_n \times \frac{1}{(1+r)^n} + RV \times \frac{1}{(1+r)^n}$$

where:
I_n – income in the consecutive years of the forecast period
r – discount rate
RV – residual value

6. Capitalization rate and discount rate as rates of return

Capitalization rate on the property market reflects the ratio between income generated by a property (net or gross operating income) and transaction price of a property, which is similar in:
- nature,
- localization,
- housing standard, technical and functional condition,
- neighbourhood,
- accessibility and communications convenience,
- other features affecting price.

$$R = \frac{I}{P}$$

where:

I –stable annual flow of income generated by a property,

P – transaction price.

Capitalization rate is estimated on the basis of market data and reflects the market rate of return for a particular market segment. It comprises both the return of the invested capital, and the income from it.

6.1. Property value

Discounted cash flows technique is used for estimating value of properties, whose real income is bound to change in the predictable future. The income change may be caused by:

- gradual attainment of the expected level (or possibility of rendering particular services) by a property or its components,
- changes in economic situation,
- change in income generated by a property, due to its development.

$$V = CF_1 \times \frac{1}{(1+r)} + CF_2 \times \frac{1}{(1+r)^2} + ... + CF_n \times \frac{1}{(1+r)^n} + \frac{RV}{(1+r)^n} \quad \text{(standard III.6)}[12]$$

where:

V – property value,

CF – Cash flow at the end of the year,

r – discount rate,

1,2,...,n – consecutive years of the forecast,

RV – residual (i.e. final) value of a property after the forecast period.

6.2. Discount rate (r) vs. property value

Discount rate should:

- reflect an investor's expected rate of return on the capital market,
- reflect the risk rate discerned by the investors in a particular market segment. Discount rate does not have to involve the risk of changes in rental fees, as well as the final (residual) value of a property.

Under these circumstances, both capitalization rate and discount rate are rates of return on the property market, and it is justified by two facts:

1) investing in property is one of the ways of capital allocation,
2) markets of various deposits are dependant of each other (shares, bonds, works of art, bank deposits etc.).

However, the two terms are not synonymous and they must not be used interchangeably in the process of property valuation, as different parameters determine their level. Capitalization rate reflects the ratio of annual income and price (or value of a property). Discount rate, on the other hand, is the capital rate of return (profitability index) and is used for calculating present value of the profits (income) generated by a property in the future. It is the expected (demanded) rate of return on the property market reflecting the risk rate, and showing the relation between the annual income earned by a property and expenditures.

Discount rate involves both:

- rate of return from secure investments (usually bonds issued by the State Treasury),
- risk premium for investing in property (systematic and specific risk).

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[12] Professional Standards for Property Valuers, The Polish Federation of Valuers' Association , Warsaw 2002

Table 2. Similarities and differences between capitalization and discount rates

	Capitalization rate (R)	Discount rate (r)
1. Essence	Rate of return	Expected rate of return
2. Scope	Total rate of return	Rate of return on capital
3. Factors determining the level	- Expected changes of rental fees, - Expected changes in final value, - Changes in expenses, - Increase in attractiveness of other deposits	- Rentability of risk-free deposits, - Risk premium for investing in property.
4. Method of recovering initial capital	Periodic cash flows	Residual value – sale after the period of presence on the market; possible periodic cash flows

As shown above, the level of capitalization rate is determined by the level of the expected rate of return on capital and by the need to correct the rate in case of possible changes in rental fees or value of a property after the period of market exposure. The following situations may take place:

- the investor recovers the capital invested in the purchase of a property (C_0) after its sale (C_s); rentals remain stable,
- the investor receives less money than he/she invested in the purchase of a property; rentals showed downward trend ($C_0 > C_s$),
- the investor receives more money after the sale of a property than he/she invested in the purchase of it, rentals showed upward trend ($C_0 > C_s$).

In the last two cases, capitalization rates need to be corrected (upwards or downwards) with relation to discount rate's level.

7. Calculating capitalization rate and discount rate in the valuation practice

7.1. Capitalization rate

The preferable way to calculate capitalization rate (R), is the application of market data, as a quotient of net operating income (NOI) possible to obtain on the market, and the market price of a property:

$$R = \frac{NOI}{P}$$

where:
R – capitalization rate
NOI – net operating income
P – price

While calculating the value of a property on the basis of market data, one needs to estimate the market level of capitalization rate. Capitalization rates (rates of return) that may be obtained in a particular market segment are estimated with application of market data, which describe similar properties being the subject of transactions entered. The rate calculated in this way (as mean, dominant value, or capitalization rate of the most similar property)

needs to be corrected by the risk difference between the valued property and the properties being the basis for calculating market capitalization rate. Moreover, it needs to be corrected taking into account the risk related to the changeability of the income earned by a property.

7.2. Discount rate

The preferable way of calculating discount rate (r), is the correction of market capitalization rates, taking into consideration the expected changes of income earned by a property and the possible changes in property prices after the forecast period. While calculating the rate, one needs to take into consideration the difference between the risk rate related to earning income flows from the valued property, and the one related to properties for which market capitalization rates have been calculated. The risk related to earning a particular income may stem from the differences in:

- localization of a property,
- technical condition,
- functional standard,
- terms and conditions of the contracts entered,
- tenants' credibility,
- other.

If it is not possible to calculate discount rate by the correction of market capitalization rates (lack of transactions in similar properties on the subject market), it may be estimated on the basis of capital market, with the application of market rates of return from risk-free investments, corrected by the system and risk premium[13]. While calculating discount rate, the following factors need to be taken into consideration:

- average rentability of government bonds with a maturity period longer than a year, inflation rate (as the income is expressed as a real value),
- systematic risk premium (the risk may be caused by crisis, inflation rise, changes in law and regulations, increase in rentability of other types of deposits),
- specific risk premium (it is a bonus related to investing in a particular property market segment, in a particular area).

Both capitalization and discount rate are the rates of return from properties. While discount rate reflects the return on invested capital, capitalization rate shows the return on the invested capital, and the return of the invested capital itself. The two rates cannot be considered equivalent, as their economical interpretations are different.

If the valued property has potential to increase in value, capitalization rate (R) will be lower than discount rate (r) applied in the process of discounting cash flows in the forecast period. In case the income flow and the value show the downward tendency, capitalization rate will be higher than discount rate.

Conclusions

The income approach is mainly applied in calculating market value of properties, which earn or might earn income. The approach may also turn useful in the process of estimating the non-market value of a property (e.g. mortgage lending value). Calculating market value with the application of the subject approach means estimating the market value of the right to receive infinite income flows. However, the correctness of calculations depend

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[13] Property investment risk Has been thoroughly discussed in: P.J. Rowland, Property Investment and Their Financing, The Law Book Company Limited, Sydney 1993, p.178.

on the correct estimation of rental rates, capitalization rates, discount rates, and other parameters reflecting the market segment represented by a valued property.

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