INCOME APPROACH FOR REAL ESTATE VALUATION

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27th ERES Conference 2021 in Kaiserslautern

Introduction

After the financial crises of the turn of the century property valuation has changed.

Last century - market value is most typical.

(Horsley G.J. " Market value: the sacred cow", Journal of Property Valuation & Investment, 1992, Vol. 10, No. 4, pp. 694–700)

Nowadays decision-makers prefer ***values in use***, not values in exchange. This is the more natural as the object of investment is more unique and more capital-intensive, esp. real estate and businesses.

Values in use

Investment value is the value of an asset to a particular owner or prospective owner for individual investment or operational objectives.

(International Valuation Standards. Effective 31 January 2020. L.: IVSC, 2019, p.22)

To calculate: future cash flows discounted to a present situation which presumably will arise from continuation of use of an active and from its sale in the end of its term of useful services

(see *IFRS 5, app. A*).

It is the difference between investment value and market value that prompts to enter the market.

Important for a potential investor to bring out this distinction more deeply. For this to consider the asset not in its existing use, but in a hypothetical use that ensures its maximum value.

User value is a present value of the future incomes of an asset in highest and best use.

(Trifonov N. "Modern condition: market value or user value?", 23-26.06.2010. 17th Annual ERES Conference. Book of Abstracts and Programme. Milano, SDA Bocconi, 2010, p. 218)

Income approach

Value in use means income approach to valuation.

Two methods under the income approach:

from XIX century – direct capitalization,

in XX century – ***discounted cash flow*** (***DCF***).

It is believed that the direct capitalization method are effectively based on DCF

(see, e.g., *International Valuation Standards. Effective 31 January 2020. L.: IVSC, 2019, p.37)*

Beginning of DCF method

Discrete cash flow, uniform cap rate.

NPV *(Fisher I. The Theory of Interest: As Determined by Impatience to Spend Income and Opportunity to Invest It. N.Y.: Macmillan, 1930)*

Terminal value *(Solomon E. "The arithmetic of capital budgeting decisions", The Journal of Business, 1956, April, No. 29, pp.124–129)*

$$V = \sum_{t=1}^{n} I_t/(1+R)^t$$

Discount rate volatility

Difference in risks involves different rates:

1st one rate to discount cash flow series, the other to discount terminal value,

2nd difference over time

Incorrect attempt (!!):

$$V = \sum_{t=1}^{n} \frac{I_t}{(1+R_t)^t} + \frac{V_n}{(1+R_n)^n},$$

Exactly without reversion

1 period (year)

$$V = \frac{I_1}{1 + R_1}.$$

2 years

$$V = \frac{I_1}{1 + R_1} + \frac{I_2}{(1 + R_1)(1 + R_2)},$$

For the entire forecast period of ***n*** years

$$V = \sum_{t=1}^{n} \frac{I_t}{\prod_{j=1}^{t} (1 + R_j)}.$$

where $\prod_{j=1}^{t} (1 + R_j)$ means

$$(1+ R_1)(1+R_2)\ldots(1+R_t)$$

Exact DCF formula with the inclusion of terminal value

Discrete cash flow, variable cap rate.

$$V = \sum_{t=1}^{n} \frac{I_t}{\prod_{j=1}^{t}(1+R_j)} + \frac{V_n}{\prod_{t=1}^{n}(1+r_t)}.$$

Simple complication

Continuous cash flow, variable cap rate.

$$V = \sum_{t=1}^{n} \frac{I_t}{(1+R_t)^{1/2} \prod_{j=0}^{t-1}(1+R_j)} + \frac{V_n}{\prod_{t=1}^{n}(1+r_t)}$$

provided

$$\boldsymbol{R_0 = 0}$$

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