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**PRACTICAL APPLICATION OF INCOME CAPITALIZATION METHOD IN  
BUSINESS VALUATION – SOME HIGHLIGHTS**

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**Abstract:** The paper describes the advantages and disadvantages of the income approach in business valuation, the essence of the method of income capitalization, as well as the peculiarities related to its application. Two main variants of the method are presented, depending on the choice of income to be capitalized. The first option is based on the net cash flow and is mainly applied to the valuation of enterprises with high investment absorption and, respectively, high share of depreciation in total expenses. The second option is based on net profit and is preferred by valuers when valuing low investment absorption firms or holding companies. A practical case study is presented to evaluate a holding company related to the determination of the market value of a minority share package. The cost of equity of the rated entity is determined by the CAPM model modifications for emerging markets. At the end, conclusions have been drawn and some problems have been described that appraisers should pay attention to. The Income Capitalization method has an easy algorithm, but its practical application is not so simple. Both fundamental knowledge and experience, as well as evaluators' attention are required, as a number of factors and circumstances must be taken into account regarding: the choice of income to be capitalized, the choice of variant for valuation methodology, model for determining the cost of equity or the weighted average cost of capital, determining the "small firm risk premium", determining the normalized income, the long-term rate of income growth, adjustments for minority or majority ownership, adjustments for marketability and others. In this method, the market value of equity ( $V_E$ ) is highly sensitive to the discount rate (the cost of capital), the long-term growth rate and the capitalization rate, respectively. Even small differences in these parameters can lead to a large difference in the value of the estimate. This requires precision and good argumentation on the part of the valuers regarding the pricing of equity, the cost of debt and the long-term average annual growth rate of income. For companies with stable incomes and good prospects for development, this method provides a relatively accurate estimate of the market value of equity. However, it must be borne in mind that the future is always uncertain. In this regard, appraisers should make a sufficiently accurate assessment of the level of business risk and financial risk of the entity being evaluated.

**Keywords:** Business Valuation, Income Approach, Income Capitalization, Cost of Equity

**1. OBJECTIVE AND TASKS**

The main purpose of this paper is to explore and explain the practical application of one of the commonly used methods in business valuation - "Income capitalization", referred to as the so-called „Income approach". The paper is focused on possible methodological and practical issues. In this regard, the following tasks can be derived: to describe the nature of the Income approach for evaluating a business, as well as its advantages and disadvantages; to clarify the nature of the Income capitalization method and its scope; to describe and explain CAPM - Capital Asset Pricing Model modifications for emerging markets as a primary method of determining the cost of equity, respectively the discount rate and the capitalization rate; to demonstrate the practical application of the Income capitalization method by determining the market value of a real enterprise; to draw conclusions from the scientific and practical research carried out.

**2. CHARACTERISTICS OF THE INCOME APPROACH FOR BUSINESS ASSESSMENT**

Income approach is one of the three main approaches to derive the market, fair or investment value of an entity that is being evaluated. Using income approach, the value of an appraised entity does not depend on the value of its assets (as opposed to the cost approach) but on its potential to generate income for its owners in the future. An enterprise may hold millions of assets but may not have any potential to generate income or vice versa - the value of the assets may be low, but the enterprise may have great potential to bring profits and dividends to its owners in the future. From this it becomes clear that a large difference between the value of the enterprise, determined by the two approaches (Income and Cost) is possible. Like each of the other approaches, the Income approach has its pros and cons. The main advantage of this approach is that it is closest to the classical investment valuation, ie. it assesses the value of the enterprise or its shares, especially from the investor's point of view. The investor is not interested in what efforts and capital the current owner has invested, ie. it does not matter the net market value of the assets of the

respective investment object. He is mainly interested in the future income that the purchase of the enterprise, its separate parts, units or shares may bring him. The disadvantage of the Income approach is usually the fact that it is sometimes difficult or impossible to make an objective and accurate forecast of the future development of the enterprise and its income. Another disadvantage is the inability to apply the approach to loss-making enterprises. The practical application of this business valuation approach involves a thorough preliminary analysis not only of the investment entity itself, but also of the sector, markets, competition, etc. Risk analysis, in particular business risk and financial risk, is also required. The main ways in which the income approach is realized are the Discounted Cash Flows (DCF) method and the Income capitalization method. Both methods share a common methodological basis, which is why some experts define the second method as a simplified version of the DCF method.

### 3. NATURE OF THE INCOME CAPITALIZATION METHOD

Income capitalization method is mainly applicable to those entities that have a stable cash flow or profit for a long period of time, which is why it is assumed that this cash flow will be received for an infinitely long time. An income (net profit or net cash flow) is taken over a certain period of time, e.g. for the previous five years and the normalized (average) income for the period is calculated. It is recommended that incidental earnings outside the normal business of the enterprise should not be taken. Adjustments are made in view of the expected growth of income in the future. A rate of capitalization is set, which is also adjusted to the projected growth rate. The market value of the valued entity is obtained by dividing the normalized average income over the period by the rate of capitalization. In financial theory, this formula is known as the "Present Value of Growing Perpetuity ". Most often, the method is implemented in two variants, depending on the type of income we use. The first option is based on the net cash flow and is mainly applied to the valuation of enterprises with high investment absorption and, respectively, high share of depreciation in total expenses. The second option is based on net profit and is preferred by appraisers when valuing low investment absorption firms or holding companies.

**Option one:** The income to be capitalized is the normalized average net (free) cash flow to investors over the selected period. The market value of equity ( $V_E$ ) is obtained as follows:

$$V_E = \frac{\overline{FCFI} \times (1 + g)}{WACC - g} + NOA - IBD$$

$\overline{FCFI}$  - normalized average Free Cash Flow to Investors

WACC – Weighted Average Cost of Capital

$g$  – expected average annual growth rate of free cash flow for an indefinite period

NOA – Non-Operating Assets

IBD –Interest-Bearing Debt

The free cash flow ( $FCFI$ ) for each year of the selected period is determined as follows:

$$FCFI = EBIT \times (1 - T) + DA - \Delta OFA - \Delta W$$

EBIT– Earnings Before Interest and Taxes

DA – Depreciation and Amortization for the year

T – Tax rate

$\Delta OFA$ – change in Operating Fixed Assets (investment in operating fixed assets during the year);

$\Delta W$  – change in Working Capital

**Option two:** The income that will be capitalized is the normalized average net profit for the selected period. The market value of equity ( $V_E$ ) is obtained as follows:

$$V_E = \frac{\overline{NI} \times (1 + g)}{R_E - g}$$

$\overline{NI}$  - normalized average Net Income for the selected period

$g$  – expected average annual growth rate of net profit for an indefinite period

$R_E$  – cost of equity

As can be seen from the formula presented here, the discount rate represents the cost of equity ( $R_E$ ), not the weighted average cost of capital (WACC) of the entity being valued. This is because the income that is capitalized is the net profit, and it is available only to the owners of the enterprise. It is logical to use the minimum required rate of return from owners. For the same reason, the market value of equity ( $V_E$ ) is obtained directly without the need to deduct debt.

#### 4. PRACTICAL CASE FOR VALUING THE ENTERPRISE THROUGH THE INCOME CAPITALIZATION METHOD

The task is to determine the market value of a minority stake of 4416 pcs. ordinary shares representing 48% of the equity of “Technotec Systems Group” JSC as at 31 December 2018. It is a parent company of a group of firms specialized in the electronics and electrical industries in Bulgaria. Both the consolidated and the individual financial statements of the company and its subsidiaries for a period of 6 years were used for the assessment.

##### Determining the normalized net profit for valuation purposes

Table 1 specifies the normalized net profit for the purposes of the valuation. The part of the net profit corresponding to the non-controlling interest and incidental income outside the ordinary activities of the group companies are deducted.

*Table 1: Net profit for valuation purposes*

line	Indicators (BGN thousand)	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
1.	Consolidated net profit with deducted non-controlling interest	1813	2764	3540	9011	12883	10163
2.	Net profit from the sale of shares and units of subsidiaries	-	-	-	6162	9370	5390
3.	<b>Net profit for valuation purposes (line.1 - line.2)</b>	1813	2764	3540	2849	3513	4773

Weighted average normalized net profit for the period 2013 - 2018 is calculated using the serial numbers of the years as weights. In other words, the years closer to the present moment have higher weights:

$$\overline{NI} = \frac{1813 \times 1 + 2764 \times 2 + 3540 \times 3 + 2849 \times 4 + 3513 \times 5 + 4773 \times 6}{1 + 2 + 3 + 4 + 5 + 6} = 3598 \text{ BGN thousand}$$

##### Determining the annual growth rate of net profit, average annual growth rate for the period 2013 - 2018 and a projected growth rate for an infinitely long time

*Table 2: Annual growth rate of net profit*

Indicators \ Year	2013	2014	2015	2016	2017	2018
Net profit for valuation purposes (BGN thousand)	1813	2764	3540	2849	3513	4773
Annual growth rate of net profit	-	1,5245	1,2808	0,8048	1,2331	1,3587

$$\overline{Y_{NI}} = \sqrt[5]{1,5245 \times 1,2808 \times 0,8048 \times 1,2331 \times 1,3586} = 1,2136$$

$$g_{NI} = (1,2136 \times 100) - 100 = 21,36\%$$

Net profit increased by 21.36% on average per year, during the selected period. As far as the forecast for future growth is concerned, there is in principle no enterprise that can sustain too high growth of sales and profits for an indefinite period of time, since this would require constant new investments on the one hand, and on the other hand, competitors are also active. Therefore, appraisers rarely set a rate of income growth for an appraised entity for an infinitely long period of time higher than the projected long-term growth of the economy as a whole. There are two negative circumstances with regard to “Technotec Systems Group” JSC:

1) From June 2016 until June 2018. the share of the company in the equity capital of subsidiary “X” gradually decreases from 100% to 40%. In doing so, it loses 60% of its main revenue and profit generator .

2) It can be expected that in the long term competition in the industries in which the group operates will increase.

In view of the above arguments, we set the growth rate of the net profit of the evaluated enterprise –“Technotec Systems Group” JSC for an infinitely long period of 2.5%, which is lower than the projected growth rate of the GDP of Bulgaria for 2019 according to a World Bank estimate of 4%.

**Determining the cost of equity of “Technotec Systems Group” JSC**

The cost of equity ( $R_E$ ) is perceived as the minimum required rate of return from the owners (shareholders) of the entity that is consistent with the risk assumed. In valuation practice, the most widely used way to derive this indicator is based on the Capital Asset Pricing Model (CAPM). For countries with underdeveloped capital markets, CAPM modifications known as “Damodaran models”<sup>18</sup> are used:

$$1) R_E = R_f + \beta_L \cdot (R_{MRP}) + R_{CRP}$$

$$2) R_E = R_f + \beta_L \cdot (R_{MRP} + R_{CRP})$$

$$3) R_E = R_f + \beta_L \cdot R_{MRP} + \lambda \cdot R_{CRP}$$

$R_f$ – Risk-free rate of return for a developed capital market

$\beta_L$ –Levered Beta of the enterprise

$R_{MRP}$  – Average Market Risk Premium for developed capital market

$R_{CRP}$  – Country Risk Premium

$\lambda$  - Exposure of the company to country risk

Each of these three models differentially incorporates country risk into the cost of equity, depending on the extent to which the particular entity is exposed to country risk. The cost of equity ( $R_E$ ) is highest for the second model and lowest for the third. The first model assumes that all firms in the country are equally exposed to country risk. It gives an average estimate of  $R_E$  compared to the other two models, which is why it is the most commonly used. In this case, we do not consider that “Technotec Systems Group” JSC has a higher exposure to the country risk than normal and that is why we will use the first model.

The indicators required for determining the cost of equity ( $R_E$ ) of „Technotec Systems Group“ JSC have the following values as of 25.01.2019. (Table 3):

**Table 3: Equity pricing indicators**

Indicators	Value	Source
US 10 years treasury bonds yield ( $R_f$ )	2,76%	<a href="https://www.investing.com/rates-bonds/u.s.-10-year-bond-yield">https://www.investing.com/rates-bonds/u.s.-10-year-bond-yield</a>
Unlevered Beta Electronics (Consumer & Office)	1,11	<a href="http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html">http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html</a>
Unlevered Beta Business & Consumer Services	0,96	<a href="http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html">http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html</a>
Debt to Equity Ratio ( $DER$ )	0,0086	Consolidated Balance sheet of “Technotec Systems Group” JSC as of December 31, 2018
Average Market Risk Premium ( $R_{MRP}$ )	5,96%	<a href="http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html">http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html</a>
Country risk premium of Bulgaria ( $R_{CRP}$ )	2,64%	<a href="http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html">http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html</a>

The unlevered beta used in the calculations below is the arithmetic mean of the beta of the two industries (table 3) that can be attributed to the activities of the corporate group and is equal to 1,035.

Determining the Levered beta ( $\beta_L$ ) and the Cost of Equity ( $R_E$ ) of “Technotec Systems Group” JSC:

<sup>18</sup>Damodaran A, *Measuring Company Exposure to Country Risk: Theory and Practice*, [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/valquestions/CountryRisk.htm](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/valquestions/CountryRisk.htm)

$$\beta_L = \beta_U \times (1 + DER \times (1 - T)) = 1,035 \times (1 + 0,0086 \times 0,9) = 1,043$$

$$R_E = R_f + \beta_L \times (R_{MRP}) + R_{CRP} = 2,76 + 1,043 \times 5,96 + 2,64 = 11,62\%$$

In some cases the so-called “Small firm risk premium”, which ranges from 2 to 4 percent is added to the cost of equity. We consider, the minimum and the value of 2% relevant in this case. The final cost of equity of “Technotec Systems Group” JSC is equal to 13.62%.

**Determining the Market Value of Equity ( $V_E$ ) of the company being valued**

$$V_E = \frac{\overline{NI} \times (1 + g)}{R_E - g} = \frac{3598 \times (1 + 0,025)}{0,1362 - 0,025} = 33165 \text{ BGN thousand}$$

**Determining the market value of a minority stake of 4416 pcs. ordinary registered shares equal to 48% of the equity share capital of “Technotec Systems Group” JSC**

In determining the market value of a stake of shares equal to 48% of the equity of the entity being valued, two standard adjustments are made, which are common practice in such valuations - the minority interest adjustment and the marketability adjustment. Both adjustments are reductions (rebates) from the determined market value of the stake of shares. The first is because the acquisition of this package gives a non-controlling interest in the capital and, accordingly, in the management of the company. The buyer will not have full control over the management. The second adjustment is made because the entity being evaluated is a privately-held company, ie. its shares are not traded on the stock market. This practically makes the future sale of the enterprise or part of it more difficult. There is no market to form a price, which is why a potential investor would offer a lower price than the seller's offer. There are no rules governing the size of these two deductions. They are entirely at the discretion of the appraisers.

	Indicator	Value (BGN)
1.	Market value of equity of “Technotec Systems Group” JSC	33165000
2.	Market value of a stake of shares equal to 48% of the equity share capital of “Technotec Systems Group” JSC, before adjustments (line1 * 0,48)	15919200
3.	Rebate for non-controlling interest (minority stake) - 10% (line 2 * 0,1)	1591920
4.	Rebat for marketability - 20% (line 2 * 0,2)	3183840
5.	<b>Final market value of a package of 4416 pcs. shares equal to 48% of the equity share capital of “Technotec Systems Group” JSC (line 2 – line 3 – line 4)</b>	<b>11143440</b>
6.	<b>Market value of a share (line 5 / 4416)</b>	<b>2523,42</b>

**5. CONCLUSIONS**

- ✓ The Income capitalization method has an easy algorithm, but its practical application is not so simple. Both fundamental knowledge and experience, as well as evaluators' attention are required, as a number of factors and circumstances must be taken into account regarding the choice of income to be capitalized, in the valuation methodology option, the way to determining the cost of equity, determining the small firm risk premium, determining the normalized income, the long-term rate of income growth, adjustments for minority or majority ownership, adjustments for marketability and others.
- ✓ The market value of equity ( $V_E$ ) in this method is highly sensitive to the discount rate (the cost of capital), the long-term growth rate and, respectively, to the rate of capitalization. Even small differences in these parameters can lead to a large difference in the value of the estimate. This requires precision and good argumentation on the part of the valuers regarding the cost of equity, the cost of debt and the long-term average annual growth rate of income.
- ✓ For companies with stable incomes and good prospects for development, this method provides a relatively accurate estimate of the market value of equity. However, it must be borne in mind that the future is always uncertain. In this regard, appraisers should make a sufficiently accurate assessment of the level of business risk and financial risk of the entity being evaluated. This is important to judge how stable earnings will be in the future. In order to correctly choose the long-term growth rate of income, it is necessary that the

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appraisers be aware of the overall product, marketing, innovation and investment policy of the enterprise and in general the future investment and business intentions of the management or the owner, as well as the development prospects in the sector as a whole and not least with the market demand trends for the products or services concerned. All this suggests that the subjective factor in the evaluation can not be avoided, and that is why the knowledge and experience of the evaluator is crucial. In the report, all input and output parameters, assumptions and methodological decisions must be substantiated.

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