ABOUT THE ANALYSIS OF THE RATE OF RETURN OF ENTERPRISE'S ASSETS AND EQUITY

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Abstract: The issue of enterprise's business efficiency is topical at all phases and stages of its development. Efficiency is a key concept in economy. Efficiency indicators are relative values which help to commensurate the achieved results and the resources used by the enterprise for their achievement.
Efficiency should be analyzed and evaluated in two interrelated aspects. We speak about efficiency in its capacity of resultative indicator that characterizes the enterprise's operations. The first aspect of efficiency shows the ratio between the value of the result achieved from operations per resource input of BGN 1, and the second one – the amount of resource input for the achievement of enterprise's result from operations of BGN 1.
Depending on the absolute values used for the calculations of the efficiency indicators, they can be classified as follows: indicators for efficiency of use of resources; indicators for efficiency of income and costs; indicators for rate of return.
The system of indicators for analysis and evaluation of the efficiency of use of resources may comprise the following indicators. The coefficients of fixed tangible asset workload and absorptiveness are used for analysis and evaluation of the efficiency of use of production fixed capital. The efficiency of use of material resources (part of the production working capital) is analyzed and evaluated by means of the coefficients of material input and material output, and the indicator for analysis and evaluation of the efficiency of use of manpower is the efficiency of labor.
The coefficients for efficiency of income and efficiency of costs are used for analysis and evaluation of the efficiency of income and costs. An objective relation exists between these two coefficients and the net income-based and cost-based rate of return, which is of crucial practical and applied significance and provides the enterprise's management with useful information.
Rate of return is a summarizing indicator that characterizes the enterprise's operations. The level of rate of return may be identified on varied bases: assets, capital, equity, fixed capital, income, cost, etc.
Efficiency of enterprise's operations can be analyzed and evaluated by using different analysis approaches and models. These are the accounting (traditional) approach based on the accounting information, the financial approach based on the quantitative business assessment, and the management approach based on the mission, vision and strategy of the enterprise.
This publication reviews the enterprise's rate of return, and its subject matter covers the rate of return of enterprises' assets and equity.
Our purpose is to demonstrate the significance and importance of the rate of return of enterprise's assets and the methodology of its analysis. To prove the benefits of the analysis of asset rate of return for the economic practice, i.e. the benefits of the accounting approach for analysis and evaluation of business efficiency. We are trying to demonstrate that the use of the indicator for equity rate of return only, while ignoring the rate of return of assets, is improper, inexpedient, misses' logics and does not provide the financial management with sufficient information for making proper and reasonable decision for the management of the enterprise and its business. This is explained by the fact that the analysis of the rate of return of the enterprise's equity does not provide information about the efficiency of use and management of assets in which owner's capital is input.
Keywords: analysis, methodology, business efficiency, accounting approach, financial approach, management approach

1. INTRODUCTION

Return on assets is one of the most important key indicators for analysis of the business efficiency of enterprises operating in the country's economy. The level of return on assets shows how efficient the management of assets is. It is expressed through the amount of gains earned from their use.

2. RETURN ON ASSETS AND RETURN ON CAPITAL

Total return on assets "shows the earnings per unit of aggregate assets. This is an indicator for business success. Such return gives idea about enterprise's economic position, irrespective of its funding method. It answers the question "Does the enterprise gain positive financial results from the invested capital wherever it comes from? Yet, what this return should be? In order to answer this question, we need to compare the return on invested capital with

the return of other similar enterprises. If such return is less than the average for the industry on systematic basis, the use of capital (assets – R.I.) within the enterprise is unsatisfactory."[1]

To our opinion and from both manager's and investor's perspective, the rate of return on invested capital, respectively, on equity, and the return on assets of the enterprise should be analyzed and evaluated simultaneously. This reasonably raises the question – why do we need to do this? For example, if investors consider only the high level of return on equity while ignoring the low level of return on assets, they would overestimate the enterprise's potential. This is because the high level of return on equity may be due, all other things being equal, to the lower amount of equity within the total capital invested by the enterprise, i.e. it can be due to the changes in the capital structure. We speak about the cases where a decrease of equity's relative share in the total invested capital exists, thus changing the autonomy, financial dependence, debt, financial autonomy and fixed capital ratios of the enterprise. The dynamics of the capital structure expressed through the change of the above ratios has immediate impact on the changes occurred in the enterprise's financial stability, which could result in its deterioration. This is to say that when considered independently, high return on equity does not manifest the efficiency of use and management of assets the enterprise's capital has been input in.

P. Petrov notes that "from managers' perspective, the ratio of net profit to total assets is the key financial ratio that characterizes the level of profitability of assets. ... The main mechanism managers have is assets (where – R.I.) ... the purpose of this mechanism is to achieve future economic benefit, i.e. profit generation. ... This is due to the fact that while forgetting the actual role of assets, the management of every enterprise often falls in a situation where assets "are held" but due to the weakness in the management they could not perform their major function – to be agents of future economic benefit."[2]

We believe that such opinion is reasonable as the main purpose of assets is to bring future economic benefit for the enterprise. The National Accounting Standards[3] say that the "future economic benefit of an asset is its ability to directly or indirectly contribute to the cash or cash equivalent inflows of the enterprise. Such cash flows may be gained through the use of the asset or its disposal."[4] Namely the future economic benefit whose agents the assets are, is one of the criteria for their recognition in the enterprise's balance sheet. Assets are defined as resources controlled by the enterprise as a result of previous events, which are expected to bring future economic benefits for the enterprise.[5]

To the opinion of C. Walsh, return on total assets and return on equity are the two key indicators for any company's performance.[6] The author focuses on the need of simultaneously analyzing the return on equity and return on assets. To our opinion, analyzing and evaluating the return on equity only while neglecting the level of return on assets is incomplete, and the resultative information does not provide the financial management with the required, complete and sufficient details for making informed, reasonable and proper decisions for the enterprise's business management from operations and strategic perspective.

C. Walsh believes that the return on total assets is the most comprehensive indicator for the management's performance.[7] He writes that "return on total assets (total return on assets – R.I.) proves to be a basis on which the enterprise can achieve good return on equity. If the enterprise's return on total assets (total return on assets – R.I.) is not good, it could hardly achieve satisfying return on equity."[8] C. Walsh further points out that "the issue of rate of return (total return on assets – R.I.) is other than (different from – R.I.) the issue of capital origin."[9] We agree with this opinion because when calculating the total return on assets, sources of acquisition of these assets (own and/or borrowed) are irrelevant. Profit is gained both from the way and efficiency of use of assets, irrespective of the sources of their acquisition.

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[1] Nikolov, N. *Financial Analysis of Enterprises' Economic Activity*. Sofia: University Publishing House Stopanstvo. (1993). p. 177

[2] Petrov, P. *Practical Analysis of Financial Statements. Concepts and Examples*. Sofia: Publishing House Siela Norma AD, (2014). p. 109

[3] See National Accounting Standards, General Provisions, paragraph 2

[4] Dushanov, I., Brezoeva, B. *New Accountancy Legal Regulations: Accountancy Act. National Accounting Standards. Comments and Clarifications*. Sofia: Publishing House Trakia – M. (2016). p. 106-107

[5] The same reference, p. 106

[6] Walsh, C. *Key Management Ratios*. Sofia: Publishing House InforDar EOOD. (2008). p. 64

[7] Walsh, C. *Key Management Ratios*. Sofia: Publishing House InforDar EOOD. (2008). p. 76

[8] The same reference, page 76

[9] The same reference, page 76

To the opinion of C. Walsh, return on total assets (ROTA – total return on assets) and return on equity (ROE) are "the two fundamental efficiency indicators. They have a number of possible options and some of them may be more appropriate for specific types of enterprises in comparison with others.[10] C. Walsh continues that "return on total assets (total return on assets – R.I.) provides the base that the return on equity needs."[11] The author comes to the conclusion that the "return on total assets (total return on assets – R.I.) is the major driver of return on equity."[12] C. Walsh develops his deliberations by noting that return on total assets (total return on assets – R.I.) is a fundamental indicator for the operations efficiency. It (this indicator – R.I.) has the strongest impact on return on equity."[13] The author further discusses and adds that the total return on assets is "also a ratio that the operations management can control most."[14]

C. Walsh underlines the importance of the total return on assets indicatory and states that "return on total assets (total return on assets – R.I.) is a key tool that can be exceptionally useful for the managers in directing the daily affairs. However, in order to make it easier, it (this key tool – R.I.) should be first of all broken down to its constituents..."[15] A fact that is crucial and useful for the business practice.

The above logically brings the question: what stronger words can be used to express the exclusive importance of the enterprise's total return on assets indicator? Moreover, C. Walsh underlines the need of deepening the analysis of asset-based return calculations by breaking it down to subsidiary ratios with the help of the determinant factor modelling method. The first breakdown of the total return on assets indicator described by C. Walsh refers to "two main subsidiary ratios: profit to total amount of sales or sale margin (measured in percentage); sales to total amount of assets or asset turnover ratio (measured in times). When multiplied, these two values always show the value of return on total assets (total return on assets – R.I.). Each of these ratios will be further broken down to other constituents to show the existing deeper relations."[16]

3. ANALYSIS METHODOLOGY

Asset-based return indicator may be discussed from two perspectives. Firstly, as an independent object of the business analysis. Here, return on assets is analyzed and evaluated in its capacity of resultative indicator by determining the strength and direction of direct factors affecting its dynamics. From this point of view, the total return on assets (ROTA) can be calculated with the following formula:

$$\mathrm{ROTA} = \frac{\mathrm{Pf^n} + \mathrm{E^i}}{\overline{\mathrm{A}}} \times 100$$

where:

$\mathrm{Pf^n}$ is the balance sheet profit,

$\mathrm{E^i}$ - interest expenses, and

$\overline{\mathrm{A}}$ - average amount of enterprise's assets.

Analysis can be further deepened by presenting the return on assets as follows:

$$\mathrm{ROTA} = \frac{\mathrm{Pf^n} + \mathrm{E^i}}{\mathrm{I}} \times \frac{\mathrm{I}}{\overline{\mathrm{A}}}$$

where:

I is the total amount of enterprise's income,

$\frac{\mathrm{Pf^n} + \mathrm{E^i}}{\mathrm{I}}$ – income-based return, and

$\frac{\mathrm{I}}{\overline{\mathrm{A}}}$ – asset load ratio.

[10] Walsh, C. *Key Management Ratios (How to Analyzed, Compare and Control Figures that Determine the Company's Value)*. Sofia: Publishing House Delphine Pres. (1995). p. 60

[11] Walsh, C. *Key Management Ratios (How to Analyzed, Compare and Control Figures that Determine the Company's Value)*. Sofia: Publishing House Delphine Pres. (1995). p. 70

[12] The same reference, p. 71

[13] The same reference, p. 76

[14] The same reference, p. 76

[15] The same reference, p. 78

[16] The same reference, p. 78

In the last two formulas, income expenses are added to the book profit in the numerator for the purposes of calculating the return on assets. Interest expenses are stated as financial expenses for the current period in the Interest Expenses Account, thus involving them in the formation of the taxable profit (profit for tax purposes), and therefore of the book profit. By adding the interest expenses to the book profit, we can see what the return on assets is, provided the enterprise works with interest-free capital only.

By doing this we can demonstrate the objectively existing relations among the different aspects of enterprise's business and to distinguish the profoundness, importance and usefulness of the methodology for analysis and evaluation of asset-based return for the business practice.

The second perspective for analysis and evaluation of return on assets refers to its capacity of factor indicator affecting the dynamics of other important resultative indicators. In this particular case we speak about the impact of changes in total return on assets on the changes occurring in the return on equity.

The return on equity indicator (ROE) can be presented with the following formula – **MODEL 1**:

$$\mathrm{ROE} = \frac{\mathrm{Pf^n}}{\overline{\mathrm{E}}} \times 100$$

where $\overline{\mathrm{E}}$ is the average amount of enterprise's equity.

Literature references provide information for return on equity calculation model with regard to the total return on assets and the financial leverage effect.[17] Return on equity can be calculated with the following formula – **MODEL 2**:

$$\mathrm{ROE} = \mathrm{ROTA} + \mathrm{K^d} \times (\mathrm{ROTA} - \mathrm{I\%})$$

where:

$\mathrm{E} = \mathrm{K^d} \times (\mathrm{ROTA} - \mathrm{I\%})$ is the financial leverage effect,

$\mathrm{K^d}$ - debt ratio (borrowings to equity ratio), and

I% - internal interest rate (percentage ratio of interest expenses to the average amount of borrowings).

The last formula shows that the following factors have impact on the dynamics of the return on equity:

1. Changes in the debt ratio;
2. Changes in the internal interest rate;
3. Changes in the total return on assets.

Analysis can be further deepened as clarified above by presenting the return on assets as a product of income-based return and asset load ratio. Thus, the formula for calculation of return on equity will look as follows – **MODEL 3**:

$$\mathrm{ROE} = \frac{\mathrm{Pf^n}}{\mathrm{I}} \times \frac{\mathrm{I}}{\overline{\mathrm{A}}} + \mathrm{K^d} \times \left(\frac{\mathrm{Pf^n}}{\mathrm{I}} \times \frac{\mathrm{I}}{\overline{\mathrm{A}}} - \mathrm{I\%}\right)$$

This formula shows that the following factors have impact on the dynamics of the return on equity.

1. Changes in the debt ratio ($\mathrm{K^d}$).
2. Changes in the internal interest rate (I%).
3. Changes in the income-based return ($\frac{\mathrm{Pf^n}}{\mathrm{I}}$).
4. Changes in the asset load ratio ($\frac{\mathrm{I}}{\overline{\mathrm{A}}}$).

In this way we can interrelate different aspects of the enterprise's business, which have impact on the return on its equity. We speak about the enterprise's capital structure (debt ratio), cost of borrowings (internal interest rate), income efficiency (income-based return and the related income efficiency ratio), and asset turnover (asset load ratio).

[17] For example, see Todorov, L. *Return and Business Risk. Analysis Models and Methods*. Sofia: Trakia – M. (2003). p. 35 – 40

4. APPROBATION OF THE ANALYSIS METHODOLOGY

With the help of the performance data of the enterprise Prestige OOD we will illustrate the methodology for analysis of return on assets and return on equity. Enterprise's performance input data are summarized in table 1. The same table shows the calculation of the additional indicators for analysis and evaluation of return on assets with regard to the return on capital.

Table 1

Indicators	Previous year	Current year	Change
I. Input data, BGN'000:			
1. Invested capital, including:	10750	10500	-250
a) equity	6100	5950	-150
б) liabilities (attracted capital)	4650	4550	-100
2. Interest expenses	105	103	-2
3. Total revenue	48500	49300	800
4. Balance sheet profit	960	920	-40
II. Additionally calculated metrics:			
5. Return on assets, %	9,9070	9,7429	-0,1641
6. Debt ratio, BGN	0,7623	0,7647	0,0024
7. Internal interest rate, %	2,2581	2,2637	0,0057
8. Profitability of revenue, %	2,1959	2,0751	-0,1208
9. Asset load ratio, лв.	4,5116	4,6952	0,1836
10. Return on invested capital, %	8,9302	8,7619	-0,1683
11. Financial leverage effect, %	5,8307	5,7193	-0,1114
11. Return on equity, %			
a) model 1 (i.4 : i.1a) x 100	15,7377	15,4622	-0,2755
b) model 2 (i.5 + i.6 x (i.5 - i.7))	15,7377	15,4622	-0,2755
c) model 3 ((i.8 x i.9) - i.6 x ((i.8 x i.9) - i.7))	15,7377	15,4622	-0,2755

Based on the details in the table, we can make the following general conclusions:

1. Return on equity calculated with the help of different models is equal. This proves the correctness of the mathematical transformations so made. On this basis, the models for return on equity analysis presented above can be successfully used in the business practice.
2. Return on equity for the current year in comparison to the previous year has decreased by 0,2755 points (15,4622 - 15,7377).
3. The financial leverage effect for the two years is positive. This means that return on equity is higher than the level of total return on enterprise's assets. In comparison to the previous year, the financial leverage effect shows minor decrease by 0,1114 points (5,7193 - 5,8307).

The impact of the factors on the decrease of the return on equity calculated with the help of Model 2 is summarized in table 2.

Table 2. Influence of factors - model 2

Factors influencing the change in returns of equity	Influence, %	
	positive	negative
1. Changes in the debt ratio	0,0184	x
2. Changes in the internal interest rate	x	-0,0043
3. Changes in return on assets	x	-0,2896
Total influence of factors	x	-0,2755

The data in this table may be used to make the following conclusions about the current year in comparison to the previous year:

1. The minor increase of the debt ratio by BGN 0,0024 has resulted in increase of the return on equity by 0,0184 points.
2. As a result of the increase of the internal interest rate by 0,0057 points, return on equity has decreased by 0,0043 points.
3. The negative impact of the return on assets decrease by 0,1641 points is strongest, which in its turn has led to the decrease of return on equity by 0,2896 points.

In other words, as a result of the overall impact of the factors, the return on equity has decreased by 0,2755 points, i.e. which is equal to the one calculated on the basis of the data in table 1.

The financial management should optimize the overall impact of the first two factors, which refer to the use of borrowings in the enterprise's business.

The increase of the amount of used borrowings results in decrease of the return on equity, and on the other hand, the decrease of the internal interest rate, i.e. the decrease of the cost of borrowings, results in increase of the return on equity. This is why, the objective abilities to achieve positive impact of the use of borrowings in the enterprise's business on the increase of the return on equity is hidden namely in the behavior of the values of the first two factors.

The third factor – total return on assets shows the efficiency of use of assets and its impact on the return on equity. This factor may be described in details with the help of Model 3 presented above.

The impact of factors on the decrease of the return on capital calculated with the help of Model 3 is summarized in table 3.

Table 3. Influence of factors - model 3

Factors influencing the change in returns of equity	Influence, %	
	positive	negative
1. Changes in the debt ratio	0,0184	x
2. Changes in the internal interest rate	x	-0,0043
3. Changes in profitability of revenues	x	-0,9620
4. Changes in asset utilization rate	0,6724	x
Total influence of factors		-0,2755

With regard to the data in table 3, we will comment only the impact of changes of income-based return and changes of the asset load ratio. As a result of the decrease of the income-based return by 0,1208 points, the return on equity has decreased by 0,9620 points, and as a result of the increase of the asset load index by BGN 0,1836 (increasing the asset turnover rate) – return on equity has increased by 0,6724 points.

5. CONCLUSION

The analytical information generated about the impact of various factors binding the different aspects of the enterprise's business is useful for the financial management and enables it to make reasonable, timely and proper decisions for increasing the level of return on equity with view of the capital structure, the cost of used borrowings and the efficiency of use of assets.

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