ON THE METHODOLOGY OF THE ANALYSIS OF BUSINESS ACTIVITIES OF ENTERPRISE

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Abstract
In general, the business activity is characterized by an intensity of use of the advance (internal) capital. Capital of an enterprise is in constant motion and moves from one stage of the turnover cycle to another:

$$M > E > \ldots > T > \ldots E^2 > M^1$$

The faster the capital turnover cycle, the more goods the enterprise will produce and sell with one and the same invested money. Delays in the reserves at any stage, lead to a slowdown in the capital turnover cycle, which requires additional capital investments and may cause a deterioration in the financial state of the enterprise. The effect of acceleration of the capital turnover is primarily manifested in the increase of the volumes of production, n output without attracting additional financial resources. In addition, the acceleration of capital turnover increases the amount of profit, since at the initial stage of capital turnover in monetary form, it returns with an increase. If the production and sale of products is unprofitable, then accelerating the turnover of capital resources worsens the financial results of the enterprise. Therefore, we can conclude that the enterprise should strive not only to accelerate the capital movement at all stages of its turnover, but also to maximize its return, which is reflected in the increase in the amount of profit per capital of one Euro. All this is achieved through the rational and economical use of the resources and inadmissibility of losses and overspendings at all stages of the capital cycle. As a result, the capital returns to its original state with an increased amount, i.e. with a profit.

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JEL Classification: *L53, M20, M21*

I. GENERAL ANALYSIS

The efficiency of the capital use is its return (profitability), which is determined by the ratio of the amount of profit to the average annual value of the fixed and working capital. To characterize the intensity of use of the capital, its turnover ratio is calculated (the ratio between the proceeds from the sale of products/works/services and the average annual cost of capital).

The relationship between return on equity and its turnover is expressed as follows:

$$\frac{\text{Profit}}{\text{Average annual amount of capital}} = \frac{\text{Profit}}{\text{Proceeds from sale}} \times \frac{\text{Proceeds from sale}}{\text{Average annual amount of capital}}$$

In other words, the return on advance capital (E_c) is equal to the product of the profitability of sales (R_s) and the turnover of the capital (C_t).

$$E_c = R_s \times C_t$$

In foreign countries, the above values are used as key indicators for assessing the financial state and business activities of the enterprise. (see table 1)

Table 1. Capital efficiency indicators

Indicators	Previous Year	Reporting Year
Profit of Enterprise (thousand EUR)	6580	13440
Proceeds from sales (thousand EUR)	40000	76000
Average annual amount of capital (thousand EUR)	48000	75000
Return on equity %	13,71	17,92
sales profitability %	16,45	17,684
Capital turnover ratio	0,833	1,013
Change in the return on equity %		
Among them:	17,92 – 13,71 = +4,21	
a) With changes in sales profitability	(17,684 – 16,45) x 0,833 = +1,03	
b) With changes in capital turnover ratio	(1,013 – 0,833) x 17,684 = +3,18	

The data in the table show that the return on equity increased by 4.21% during the reporting period, which

was mainly due to the acceleration of capital turnover, while in terms of profitability of sales, it increased by 1.03% compared to the previous year.

In conditions of the market economy, three key indicators of profitability are calculated to assess the efficiency of use of the capital by enterprises:

- Overall return on advance capital
- Return (profitability) of the capital borrowed from creditors
- Return (profitability) on equity
- To calculate these indicators, we introduce the following legends:
- C_k - Equity
- N_k – Borrowed capital
- ΣK – Total advance capital
- M - Profit before tax and interest payments on loans
- M^I – Net profit after taxes and interest payments on loans
- G – Loan interest rate according to the contract
- R_{ak} – Profitability of advance capital before payment of taxes
- R_{ck} - Profitability of equity after payment of taxes
- K_t – Tax rate (ratio of tax amount to profit)
- F_d - Financial costs of servicing accounts payable

1. Overall return on advance capital is determined as the ratio of the profit to the total volume of the advance capital:

a) before payment of taxes:

$$R_{ak} = \frac{M}{C_k + N_k}$$

b) after payment of taxes:

$$R_{ak} = \frac{M^I + F_d}{C_k + N_k}$$

2. The return on borrowed capital is calculated as the ratio of the amount of interest paid on investor loans to the average annual value of the enterprise's liabilities:

$$R_{bc} = \frac{\text{Interest paid on investor loans}}{\text{Average annual value of the enterprise's liabilities}}$$

Denominator of the above indicator includes not only financial debts (loans and credits), but also all other debts (to suppliers, other creditors)

However, profitability of the borrowed capital calculated in this way, does not reflect appropriately the value of the enterprise's loans because it does not take into account the tax savings that reduce the fair value of the debt. The fact is that different companies can have different interest rates on loans under equal amounts of profit, and therefore different taxable amounts of profit. As a result, an enterprise that has higher financing costs (interest on credit) will have less taxable profit and tax. Therefore, an actual interest rate on the credit will be less than the set rate.

Consider the following example:

	Enterprise A Thousand EUR	Enterprise B
Profit before tax and interest payments on credit	1000	1000
Financial costs (interest on credit)	-	(200)
Taxable profit	1000	800
Tax (15%)	150	120
Net profit	850	680

Tax savings in enterprise “B” amount to 30 thousand euros. Therefore, if the enterprise receives a credit at a rate of 10%, then in terms of 15%, Tax Rate, the real credit will be not 10% but 8.5% [10%(1-0.15)]

3. Return on equity is the ratio of the amount of net profit earned during the reporting period to the average annual cost of equity

$$R_{ck} = \frac{M^1}{C_k}$$

In its turn, the net profit may be introduced as follows

$$M^1 = \text{Gross profit} - \text{taxes} - \text{interest}$$
$$M^1 = R_{ak} * \Sigma K (1 - K_d) - G * N_k$$
$$\text{Since } \Sigma K = C_k - N_k \text{ , then C}$$
$$\text{then: } M^1 = R_{ak} * C_k - (1- K_d) + R_{ak} + N_k * (1 - K_d) - G * N_k$$

As mentioned above, return on equity is determined as the ratio the net profit to the own advance capital"

$$R_{ck} = \frac{R_{ak} * C_k (1- K_d) + [R_{ak} (1 - K_d) - G] * N_k}{C_k}$$

I.e.

$$R_{ck} = R_{ak} * (1- K_d) + [R_{ak} (1 - K_d) - G] * \frac{N_k}{C_k}$$

A difference between the return on equity and the return on the advance capital (after payment of taxes) $[R_{ak} * (1 - K_d)]$ is formed on the basis of the effect of financial leverage (F_{be})

$$F_{be} = R_{ak} [1 - K_d) - G] * \frac{N_k}{C_k}$$

Effect of financial leverage shows what is a percentage of increase of the return on equity as a result of attracting borrowed capital into the capital turnover of the enterprise. This effect occurs if the economic profitability is higher than the interest rate on the loan or credit.

Effect of financial leverage consists of two components: This is the difference between the return on investment (after paying taxes) and the interest rate on the loan ($R_{ak} (1 - K_d) - G$); The power of financial leverage is the ratio N_k / C_k

Effect of financial leverage occurs when $R_{ak} [1 - K_d) - G > 0$. For instance, return on investment after payment of taxes is 15%, in conditions where the interest rate on the credit resources is 10%. A difference between the value of the borrowed capital and the capital of the enterprise, makes it possible to increase the return on equity. In such the conditions, is seems also advisable to increase the power of financial leverage, i.e. a share of the borrowed capital. But, in the event of $R_{ak} [1 - K_d) - G > 0$, a negative effect of the financial leverage occurs (so called "Komble" effect). which absorbs equity and its consequences can be devastating for the enterprise

The situation changes somewhat with the effect of financial leverage, if we take into account the financial costs of debt service when calculating taxes. Under such conditions, the real interest rate on the loan based on tax savings will be reduced compared to that provided for in the contract, and will be equal to $G (1-K_d)$. For such cases, it is recommended to calculate the effect of the financial leverage by the following formula:

$$F_{be} = [R_{ak} [1 - K_d) - G (1-k_d)] \frac{N_k}{C_k} = (R_{ak} - G) (1- K_d) \frac{N_k}{C_k}$$

For a better understanding a sense of the financial leverage and a difference between the above provided formulas, let's consider two situations, here, in one case, when calculating taxes, ther interest rate on the credit resources is not envisaged, while in the second case – is (see Tables 2 and 3)

Table 2. Situation I (Interest not envisaged)

(thousand EUR)

Indicators	Enterprise A	Enterprise B	Enterprise C
Average annual amount of advanced capital	2000	2000	2000
Among them:			
Borrowed capital	-	1000	1500
Equity	2000	1000	500
Profit before tax	400	400	400
Total return on the advance capital, %	20	20	20
Profit Tax (15%)	60	60	60

Profit after payment of tax	340	340	340
Amount of the bank credit interest (rate: 10%)	-	100	150
Net profit	340	240	190
Return on equity, %	17	24	38
Effect of the financial leverage, %	-	+7	+21

As shown from the above data, in conditions of equal economic return of the advance capital (20%), there exist different levels of the return on equity. For instance: in Enterprise B, which uses the borrowed money, the return on equity has increased by 7%, because it pays for the credit resources 10% interest rate as envisaged under the contract, while the return on the invested capital after paying the taxes, amounts to 24%.

$$\text{In Enterprise B: } F_{be} = [20\ (1 - 0{,}15) - 10] * \frac{1000}{1000} = +7\%$$

Enterprise C received the effect of the financial leverage on account of increase of the share of even more borrowed capital (power of the financial leverage)

$$F_{be} = [20\ (1 - 0{,}15) - 10] * \frac{1500}{500} = +21\%$$

Let's now consider the second situation:

Table 3. Situation II (Interest envisaged)

(thousand EUR)

Indicators	Enterprise A	Enterprise B	Enterprise C
Average annual amount of advanced capital	2000	2000	2000
Among them:			
Borrowed capital	-	1000	1500
Equity	2000	1000	500
Profit before tax	400	400	400
Total return on the advance capital, %	20	20	20
Amount of the bank credit interest (rate: 10%)	-	100	150
Taxable profit	400	300	250
Profit tax (15%)	60	45	37.5
Net profit	340	255	212.5
Return on equity, %	17	25.5	42.5
Effect of the financial leverage, %	-	+8.5	+25.5

As the data of the table show, a fiscal accounting of the dept service-related financial expenses has enabled the Enterprise B to increase the effect of the financial leverage (based on the tax savings) from 7% to 8.5%, while the Enterprise C – from 21% to 25.5%

$$\text{In Enterprise B: } F_{be} = (20 - 10)\ (1 - 0{,}15) * \frac{1000}{1000} = +8.5\%$$

$$\text{In Enterprise C: } F_{be} = (20 - 10)\ (1 - 0{,}15) * \frac{1500}{500} = +25.5\%$$

Thus, the main difference between these formulas is that the calculation of the effect of the financial leverage under Formula 1, is based on interest rate G envisaged by the contract, while in case of Formula 2, the calculation of the effect of the financial leverage is based on the interest rate $G * (1 - K_d)$, which is corrected by the relieves. Effect of the financial leverage, considering the financial expenses, depends upon the following three factors:

Difference between the total return on the advance capital (after payment of taxes) and the interest rate as per the contract:

$$R_{ak} (1- K_d) – G = 20 (1 – 0.15) – 10 = +7\%$$

Reduction of the interest rate based on the tax savings:

$$G – G(1- K_d) = 10 (1 – 0.15) = +1,5\%$$

Power of the financial leverage:

$$\frac{N_k}{C_k} = \frac{1500}{500} = 3\%$$

Finally, by effect of all these three factors, we will have:

$$F_{be} = (7 + 1.5) * 3 = 25.5\% \text{ (for Enterprise C)}$$

In the event of inflation, the effect of financial leverage, among other factors (difference between the rate of return on advanced capital and the interest rate on borrowed capital, the level of taxation, the amount of credit liability) will depend on the rate of inflation. Therefore, it will be necessary to adjust the amount of equity and profit with taking into account the level of inflation, which will make it possible to determine the effect of financial leverage using the formulas discussed above.

II. CONCLUSION

Management of the enterprise should know how the different structure of the capital affects the value of the additional attracted capital. Therefore, it is quite understandable their aspiration to reduce the value of the additional attracted capital by changing the capital structure. At the same time, it is necessary to take into account the following principles:

Since the borrowed capital is considered a cheaper source (the effect of tax savings on interest, and also, a lenders' risk is lower than that of owners, so owners should receive more return on invested capital to compensate for the risk), It can be assumed that the increase in borrowed capital and the expulsion of the equity will provide an opportunity to solve this problem.

At the same time, a significant increase in the share of borrowed capital leads to an increase in financial risk, since at first, the already significant share of borrowed capital forces lenders to raise interest rates; And second, increase in the share of the borrowed capital increases the risk to owners, which necessitates an increase in the required rate of return on equity.

Therefore, in the defined ratio of borrowed and equity, the optimal structure of resources is achieved, which results in the effect of financial leverage. It shows how much the return on the equity increases as a result of attracting the borrowed capital into the enterprise. It arises in cases where economic profitability is higher than the interest rate on the loan or credit.

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