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INCREASING COMPANY VALUE THROUGH MONITORING  
THE IMPACT OF DIFFERENT VARIABLES

*This paper describes the effects of individual variables on the change of company's value at different chronological periods. Changes in EBIT, tax rates, changes in the yield on equity of new investments, changing reinvestment rate, extension of the period of high growth, changes in capital cost, changes in debt ratios, as well as the cumulative effect of all the variables are just some of the factors affecting company's value.*

*Keywords: EBIT, company's value; investments.*

*JEL classification: D24; G31.*

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ЗБІЛЬШЕННЯ ВАРТОСТІ КОМПАНІЇ ШЛЯХОМ  
МОНІТОРИНГУ ВПЛИВУ ЗМІННИХ

*У статті розглянуто вплив окремих змінних на зміну вартості компанії та в різні хронологічні періоди. Проаналізовано, зокрема, вплив таких змінних: зміни в прибутку до сплати податків та процентів, податкові ставки, зміни в прибутковості капіталу на нові інвестиції, ставки реінвестування, подовження періоду високого росту, зміни у вартості капіталу, співвідношення боргу, а також кумулятивний ефект від всіх цих змінних на вартість компанії.*

*Ключові слова: прибуток до сплати податків та процентів; вартість компанії; інвестиції.*

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УВЕЛИЧЕНИЕ СТОИМОСТИ КОМПАНИИ ПУТЕМ  
МОНИТОРИНГА ВЛИЯНИЯ РАЗЛИЧНЫХ ПЕРЕМЕННЫХ

*В статье рассмотрено влияние отдельных переменных на изменение стоимости компании в течение различных хронологических периодов. Проанализировано влияние изменений в прибыли до уплаты налогов и процентов, налоговые ставки, изменения в доходности капитала на новые инвестиции, изменение ставки реинвестирования, продление периода высокого роста, изменения стоимости капитала, изменения в соотношении долга, а также кумулятивный эффект всех этих переменных, включенных в стоимость компании.*

*Ключевые слова: прибыль до уплаты налогов и процентов; стоимость компании; инвестиции.*

**Introduction.** In today's market environment increasing the value of a company turns to be an imperative. Some companies are able to develop strategies for long-term financial performance above the industry average. The study of the impact of business strategy on financial performance indicates that market share, quality, capacity utilization and capital investments have greatest impact on value creation. General economic conditions such as inflation, interest rates or tax rates will affect all companies, though not to the same extent. Companies develop investment, operational and financial strategies to take advantage of economic opportunities that cre-

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ate sustainable competitive advantage. Future cash flows depend on operational and investment decisions, and financial decisions are of crucial importance for capital costs. In other words, company's value depends on the volume and riskiness of cash flows generated from operations and capital expenditures. Will the value of company increase or decrease depends on the success of strategy implementation (Peterson et al., 2011).

On the other hand, there are activities that do not affect cash flows, the expected growth rate, the length of the period of high growth and cost of capital, and therefore they do not affect company's value. Such activities include changes in the method of calculating inventories and depreciation, payment of dividends in new shares or grinding action, which change the number of shares, but have no influence on cash flows, growth or value. Nevertheless, to some extent these activities are the signal for changing stock prices.

Realization of the return rate that exceeds the rate expected by investors, that represents the cost of capital to the company, from new investments, and the investments undertaken before, creates company's value. Quality of products and services, competitive advantage and cost effectiveness are the key segments of business activity, which are company's daily activities. Day by day value-oriented companies take care of capital structure and consider payout policies from the strategic point of view. From choosing between retained or paid income, level of indebtedness (leverage), purchase of own shares and sources of funding depends the future value of a company (Helfert, 2001).

Combination of investment and operational (business) decisions generates operating cash flow after taxes (free cash flow – FCF), while financial decisions affect capital structure and the average cost of capital – WACC (Horne et al., 2009). By applying the cost of capital as the discount rate, to free cash flow and residual (terminal) value we obtain the value of equity (shareholders' equity). At the same time, economic conditions, product life cycle, competition and many other factors affect the size and the variability of projected cash flows. On the other hand, capital market impacts the required rate of return on investment. Company usually keeps profits when there are profitable investment alternatives and thus does not pay dividends. Return on investment above the cost of capital increases company's value, which leads to prices appreciation at efficient capital market, and shareholders are compensated for the realization of capital gains. Conversely, when a company does not have profitable projects, it usually pays dividends or purchases own shares.

The aim of the paper is to determine the extent to which changes of certain factors affect company's value. The analyzed factors are: cash flows generated on the basis of the existing investments, expected rate of profit growth and future cash flows, the period during which company can sustain above-average growth (and extra yield) and capital cost used to discount these cash flows.

**Literature review.** In the last two decades of the last century there have been many significant changes in the methodology of creating value. Until the 1980s the emphasis was on the profit rate. This approach did not take into account assets and investments, which was corrected the in 1990s by putting emphasis on ROA (return on assets). During the 1990s the literature introduced the term "capital cost" and economic profit meant profit greater than the cost of funding sources. Free cash flow

(FCF), company value, and the net cash flow in investment projects (cash flow return on investment – CFRO) became the dominant criteria. Further development led to the application of today's criteria for assessing company's value, such as economic value added (EVA) and market value added (MVA) (Damodaran, 2012).

Increase in cash flows from the existing investments are an important part of value creation. The ability to increase value exists if taken earlier investments derive lower yield than the yield that could be achieved if they were better managed (Jordan, 2009). Decision on continuation or termination of investment depends on several factors. If a continuous value, which represents the present value of expected cash flows to the end of its service life, is greater than what would be obtained with liquidation or sale of a company, it should proceed with investment by the end of its useful life. If liquidation value or the value of disposal is higher than continuous value, liquidation or disposal could increase the value. Most companies, as the first step to increase value, undertake cost-cutting and/or layoff. At first glance, the easiest way is to lay off workers, however, if later would be needed new workers the company would need additional costs for training. Similarly, if you reduce costs, such as R&D costs, it can instantly increase profits, but it could endanger future growth. Company can create added value by increasing the rate of profit (operating margin). In order to assess whether the rate of profit is satisfactory, the easiest way is to check how much it deviates from the average in the corresponding branch. As company's value is the present value of its cash flows after taxes, any action that would reduce tax liability of a company could be affected by value increase.

Measures of this kind are the transfer of income from the countries with high tax rates to the countries with low taxes or countries that do not charge taxes at all. If a company would reduce net capital spending of the existing assets, which represents the difference between capital expenditures and depreciation, this would increase company's value. During the short period, capital expenditure may be even less than property depreciation, creating cash inflow from net capital expenditure (Brzakovic, 2013).

Reduction of non-monetary working capital as the difference between non-cash current assets (inventory and receivables) and part of current liabilities that are not debt (payables), is cash inflow. Reducing non-monetary working capital, expressed as % of revenue should increase cash flows, and therefore value, assuming there are no adverse effects on growth and operating income. Sometimes companies with low cash flows may have high value if they are able to grow fast. High growth occurs either due to increased rates of reinvestment, or due to higher return on capital. Increasing the reinvestment rate leads to an increase in value only when return on capital is higher than capital cost. If return on equity is less than cost of capital, positive effects from growth will be less than negative effects of reinvestment. Higher return on capital, as a rule, causes an increase in expected growth, unless invested in risky activities (Higgins, 2007). If the return on capital increases by entering into new activities that are much riskier than the existing ones, this may increase the cost of capital, which reverses the growth of value. If the return on equity splits in the operating margin and turnover indicator, we get an insight into how decisions on fixing prices of products can increase value. When companies raise their prices, they increase the operating margin, but reduce sales (an indicator of turnover). The volume of declining revenue depends on how elastic the demand for that product is and how big is the competition at a partic-

ular market. Companies create value if their investments make extra yield as long as possible. However, under free competition, achieving extra yield is a magnet that attracts entrants to engage in this activity, which eventually leads to price decrease and eliminates extra yield. Companies that achieve extra yield protect themselves in different ways against competition, they try, above all, to achieve advantage in competition. One of the most effective ways to achieve competitive advantage is to create a strong and recognizable brand. Strong brands generally allow companies either sell more than competitors for the same price (increasing turnover ratio) or charge prices higher than competitors for the same products (increasing the rate of profit).

Companies with a cost advantage (cheaper raw materials, energy, labor etc.) increase their value by applying the strategy pricing identical to prices of competitors, when they have better operating margin, or applying a strategy of lower prices with higher turnover ratio. Another possibility is the combined effect of increasing company's margins and increased turnover, which also increase the return on capital, and thus the expected growth. One of the ways in which companies can extend the period of high growth is to increase entry barriers for competitors.

Typical competitive advantage are the barriers of legal nature, such as patents and licenses. The downside is that license is usually determined by the control of prices or margins, as it is the case in the field of electricity where the state controls the price (often for social reasons), so manufacturers are not only prevented from exercising extra profit but often make big losses, which reduce company's value. Company's value is the present value of future cash flows. Cash flows generated over time are discounted to present value at cost of capital, while the cost of capital is the sum of the cost of financing from debt and equity sources (Parrino et al., 2012). If it is assumed that cash flows are constant, reducing the cost of capital leads to increased company's value. Company can reduce the cost of financing in many ways (Bodie et al., 2008).

The cost of financing the action and debt capital depends on operational risk activities of a company. Operational risk is a direct function of products or services provided by a company and the extent to which these products and services are dependent on consumers' decisions. Reducing business leverage (fixed costs), companies are becoming less risky, as this reduces the cost of capital. Companies can reduce fixed costs by costs tied to revenue or use other companies to provide them with certain services, such as transportation. Companies can also reduce operational risk by making their products and services less dependent on consumers' will, which can be achieved by better performance. One way to reduce the cost of financing is to change the ratio of debt and equity (capital structure), used to finance the company (Gitman, 2012).

Although debit sources, due to reduced risk for lenders and tax savings on interest, should be cheaper than equity capital, which increases the overall risk of a company, and thus the cost of borrowing. In other words, the value of company will rise only when there are positive net effects, while the opposite value of a company will be reduced even when the cost of capital decreases. Companies that do not adjust their cash flows on debt and cash flows based on property (using short-term debt amount of resources to finance long-term assets, debt in one currency to finance assets in another currency, or a floating rate debt to finance assets whose cash flows tend to be negatively affected by higher inflation), will bear a greater risk because of obligations' settlement, and they will have higher cost of capital and lower company's value (Damodaran, 2012).

**Problem and methodology.** The paper is based on a mathematical model. As an example we use an imaginary company.

The value of company is the present value of expected cash flows, both on the basis of existing assets, and the basis for future growth discounted by the rate of capital costs. Increase in company's value (shareholder wealth) depends on the realization of the rate of return that exceeds the rate expected by investors (capital cost), on new investments, as well as on earlier investments undertaken.

$$\text{Value of Asset} = \sum_{t=1}^{t=N} \frac{E(\text{Cash Flow}_t)}{(1+r)^t}, \quad (1)$$

where  $N$  is the period of the asset;  $r$  is the discount rate (Damodaran, 2014).

The assumption is that value increases if one or more of the following conditions are fulfilled: increased cash flows realized by the existing investments, increase in the expected rate of profit growth, increasing length of the period of high growth and reduced cost of capital used for discounting cash flows. The paper uses the assumptions listed in Table 1, where we observe a change in the next 4 periods, compared to the zero (initial) period. Period in this particular case means calendar year. Table 1 shows 12 variables that determine company's value, of which we analyze the impact of changes in 7 individual variables on the value of the company (EBIT, tax rate, capital gains from new investment, reinvestment rate, extension of the period of high growth, cost of capital, the debt ratio) as well as their cumulative effect. Discounting the modified cash flows generated by changing individual variables makes a change in company's value, as well be shown below.

*Table 1. Variables that determine company's value, authors'*

Period	Period 0	Period 1	Period 2	Period 3	Period 4
EBIT from existing assets, USD	8,000	9,000	10,000	11,000	12,000
Capital invested in existing assets, USD	15,000	15,000	15,000	15,000	15,000
Tax rate, %	20	18	16	14	12
Return on capital on new investments, %	20.00	25	30	35	40
Reinvestment rate, %	30.00	35	40	45	50
Length of growth period	5	6	7	8	9
Debt ratio, %	5.00	10	15	20	25
Cost of equity in high growth, %	8.00	7.50	7.00	6.50	6.00
Pre-tax cost of debt in high growth, %	6.00	6.00	6.00	6.00	6.00
Stable growth rate, %	5.00	5.00	5.00	5.00	5.00
Return on capital under stable growth, %	15.00	15.00	15.00	15.00	15.00
Cost of equity under stable growth, %	8.00	7.50	7.00	6.50	6.00
Cost of debt under stable growth, %	6.00	6.00	6.00	6.00	6.00

**Results and discussions.** Increase in earnings before interest and taxes (EBIT), along with other factors held constant, increasing proportionally company's value. Earnings growth from 8,000 USD in the zero period to 12,000 USD in the fourth year, leads to profit increase of 116,189.46 USD, which represents an increase of 50% as compared to the zero level.

If we assume that company can reduce the rate of taxable income per year by 2%, with all other factors held constant, this will increase the value of the company more

than proportionally. Thus, in the first year of growth in the company's value exceeds the 0.3% decline in tax rate, while in the fourth year it exceeds 1.16%.

*Table 2. Changes in EBIT and changes in company's value, authors' calculation*

	Period 0	Period 1	Period 2	Period 3	Period 4
<b>EBIT changes, USD</b>	<b>8,000</b>	<b>9,000</b>	<b>10,000</b>	<b>11,000</b>	<b>12,000</b>
Value of company, USD	232,378.91	232,378.91	232,378.91	232,378.91	232,378.91
Change in value, USD	0	29,047.36	58,094.73	87,142.09	116,189.46
Total value, USD	232,378.91	261,426.28	290,473.64	319,521.0	348,568.37
As % of company value	0	12.50	25.00	37.50	50.00

*Table 3. Changes in tax rates and in company's value, authors' calculation*

	Period 0	Period 1	Period 2	Period 3	Period 4
<b>Change of tax rate, %</b>	<b>20</b>	<b>18</b>	<b>16</b>	<b>14</b>	<b>12</b>
Value of company, USD	232,378.91	232,378.91	232,378.91	232,378.91	232,378.91
Change in value, USD	0	5,349.70	10,678.94	15,987.85	21,276.55
Total value, USD	232,378.91	237,728.61	243,057.85	248,366.76	253,655.46
As % of company value	0	2.30	4.60	6.88	9.16

The annual growth of 5% rate of return on equity for new investments for the period of 4 years, with other factors held constant, leads to a more than proportional increase in company's value, while the growth in the first year, increasing to 2%, in the second of 4.4%, in the third to 7.21%, in the fourth to 10.45% is compared to the rise in yields on new investments.

*Table 4. Changes in return on equity from new investments and in the value of company, authors' calculation*

	Period 0	Period 1	Period 2	Period 3	Period 4
<b>Change in return on capital on new investments, %</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>
Value of company, USD	232,378.91	232,378.91	232,378.91	232,378.91	232,378.91
Change in value, USD	0	16,274.91	33,466.18	51,612.34	70,752.99
Total value, USD		248,653.82	265,845.09	283,991.26	303,131.91
As % of company value	0	7	14.40	22.21	30.45

Increasing the rate of reinvestment, assuming a constant rate of return on reinvested funds, brings the increase of value, but at a rate lower than the growth rate of reinvestment.

*Table 5. Change in reinvestment rate and in the value of company, authors' calculation*

	Period 0	Period 1	Period 2	Period 3	Period 4
<b>Change in reinvestment rate, %</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>	<b>50</b>
Value of company, USD	232,378.91	232,378.91	232,378.91	232,378.91	232,378.91
Change in value, USD	0	9,186.99	18,687.36	28,509.04	38,660.11
Total value, USD	232,378.91	241,565.91	251,066.27	260,887.96	271,039.02
As % of company value	0	3,95	8,04	12,27	16,64



With the extension of the period of high growth, from 5 to 9 years, the company's value increases by 30.62%.

*Table 6. Extension of the period of high growth and changes in company's value, authors' calculation*

	Period 0	Period 1	Period 2	Period 3	Period 4
<b>Change in the length of growth period</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
Value of company, USD	232,378.91	232,378.91	232,378.91	232,378.91	232,378.91
Change in value, USD	0	16,707.08	34,104.66	52,240.00	71,162.61
Total value, USD	232,378.91	249,086.00	266,483.58	284,618.91	303,541.52
As % of company value	0	7.19	14.68	22.48	30.62

Decline in equity prices during the period of high and stable growth has the most significant positive effect on the value of company, among all the variables considered. Thus, the decline in capital cost by 0.5% in the first year leads to an increase in company's value by 18.25%, while the cost of capital by 2% in the fourth year leads to company's value being increased 183.62%.

*Table 7. Changes in equity prices and in the value of company, authors' calculation*

	Period 0	Period 1	Period 2	Period 3	Period 4
<b>Change in cost of equity, %</b>	<b>8</b>	<b>7.5</b>	<b>7</b>	<b>6.5</b>	<b>6</b>
Value of company, USD	232,378.91	232,378.91	232,378.91	232,378.91	232,378.91
Change in value, USD	0	42,398.47	106,108.34	212,591.62	426,690.98
Total value, USD	232,378.91	274,777.38	338,487.25	444,970.53	659,069.89
As % of company value	0	18.25	45.66	91.48	183.62

Assuming that the ratio of debt increases annually at the rate of 5%, and other elements, including the cost of debt remain unchanged, the value of company, due to tax shield increases more than proportionally. Thus, company's value in the first year is 5.46% higher, while in the fourth year it increases by 26.59%.

*Table 8. Changes in the ratio of debt and in the value of company, authors' calculation*

	Period 0	Period 1	Period 2	Period 3	Period 4
<b>Change in debt ratio, %</b>	<b>5</b>	<b>10.00</b>	<b>15.00</b>	<b>20.00</b>	<b>25.00</b>
Value of company, USD	232,378.91	232,378.91	232,378.91	232,378.91	232,378.91
Change in value, USD	0	12,696.99	26,995.00	43,219.56	61,790.84
Total value, USD	232,378.91	245,075.90	259,373.92	275,598.47	294,169.76
As % of company value	0,00	5,46	11,62	18,60	26,59

Tables 2–8 show the individual effects of changed variables on the value of company. However, assuming that in each period, all the variables are changing, their more than proportional cumulative effect is shown in Table 8. Thus, in the first year the company's value rises to 49.71%, in the second year it rises to 137.81%, in the third – to 303.27% and 619.99% in the fourth year. In other words, the company at the initial (zero) stage was worth 232,378.91 USD, and in the fourth year it was worth 4,745,237.73 USD.

Table 9. The cumulative effect of variables' change in the observed period, authors' calculation

Cumulative effect	Period 0	Period 1	Period 2	Period 3	Period 4
Value of company, USD	232,378.91	274,777.38	338,487.25	444,970.53	659,069.89
Change in value, USD	0	136,603.41	466,480.14	1,349,454.73	4,086,167.84
Total value, USD	232,378.91	411,380.79	804,967.39	1,794,425.27	4,745,237.73
As % of company value	0	49.71	137.81	303.27	619.99

**Conclusions.** The creation of company's value has multiple sources, depending on the nature of company's activities. In this paper we show the results testing of different variables on the basis of mathematical models and imaginary company created by the authors.

The most important factors, which affect the value of this company are attractiveness of economic activity and competitive advantage. Factors that increase positively net present value, and provide the returns higher than those required by investors, are positioning at the growth stage of a production cycle, preventing competition by using hedging instruments such as patents, temporary power monopoly and/or oligopoly pricing. Some of possible competitive advantages are cost advantage of marketing and price advantage of recognized quality and superior organizational skills (corporate culture).

Company's value depends on financial performance, customer relations, quality of internal business processes, as well as investment in staff training. Increase in cash flows from the existing investments reduce costs, increase profit margins, reduce tax liability, decrease net capital expenditures and working capital contribution, increasing the rate of return on capital and reinvestment rate, extension of the period of high growth, barriers to competition, cost of financing, changes in capital structure are some of the factors that affect company's value.

In the present model, changes in EBIT, along with some other factors held constant, proportional to the change in company's value, changing the reinvestment rate with unchanged rate of return, proportionately smaller increase in the value of company, and due to changes in tax rates of return on capital from new investments, extending the duration of the period higher growth rates of capital and debt ratios, the value of company grows more than proportionally. At the individual level, decline in equity prices during the period of high and stable growth, has the most significant positive effect on company's value. However, assuming that in each period all the variables are changing, their cumulative effect is more than proportional to the sum of their individual impacts.

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