The Efficiency of Investments in Business in the Context of the Business's Market Value Added

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Abstract

A condition for growth and the purpose of a business is to maximise the benefits for its owners which come from the increase in the business's market added value. One of the elements of the growth of the market value of a business is new investments. In a situation of increasing efficiency of the business, that is a faster growth of the effects of the investments compared to the increase in expenditures, the business creates (added) value that raises its market value. The objective of this article is to show the importance of investment risk in business operations and the connection between the efficiency of an investment (return on investment) and the execution of the main purpose of the activity (growth) of the business with a special attention paid to the specific stages of its growth.

Key words

Market Value Added; Economic Value Added; investment.

JEL Classification: G11, G 32

1. The Importance of Investment in the Growth of a Business; Investment Risk

The key objective of a business is to maximise the wealth of its owners by maximising the value of the business. The business aiming at that objective has to grow.

The growth in a broad term is a process of desirable qualitative and quantitative changes taking place in the business in a regular, ordered and relatively permanent manner and resulting in an increase in efficiency, that is a better use of the broadly understood resources (the growth cannot be an incidental event, but a long-term process of layering the desired changes over time). The growth that leads to achieving the main objective of the business is possible thanks to investment activities executed by the business resulting in new projects (Towarnicka, 1998, p. 34).

Investments can be defined in the most universal way as capital expenditures made on various undertakings in order to generate specific benefits, or effects. Such a definition of an investment includes both investments in recreation of existing assets, creation of new fixed and tangible assets as well as investing cash surpluses in financial instruments available in the capital market. Hence, one can talk about the following investments (Rogowski, 2005, p. 17):

- recreation – the main purpose is to recreate the worn-out fixed assets, which in turn allows the business to continue its existence and to maintain its market position;
- modernisation – to update the assets, that is to increase their technical and production quality;
- innovation (development) – to create new assets, products, technologies that have not existed before. These investments increase the quality of the business's services (products),

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improve labour efficiency, contribute to cost reductions and to the largest extent foster its growth and build the market expansion momentum.

As the aforementioned definitions show, what has a special importance from the point of view of the business's growth is the modernisation and innovation investment. It comes from the fact that its aim is to increase the production capacity not only in terms of efficiency of labour, but also in terms of technical equipment, retail chain, diversification of the distribution networks, putting into production new, modern products that better satisfy the existing needs of prospective buyers (Rogowski, 2005, p. 17). These are also the investments that are aimed at the diversification of the business activities, thus minimising their risk due to the threat of failure of the consecutive projects or the loss of some markets. Those types of investments are connected with the implementation of innovative solutions, products, technologies to the business, which makes them most desirable from the point of view of the business's growth, So, in that view investments can be treated as a way, elements of the business's growth.

Each investment generates for the business some risk, that is the threat that the objective (growth) will not be achieved. The investment risk can be defined as the probability of not achieving the desired rate of return on an investment, that is the profitability (return) of the invested capital is lower that the weighted average cost of capital (Rajzer, 2001, p. 209). The investment risk (apart from the operational and financial risks) is an element of the broadly understood risk of growth and is so important for the business, that if the required return on investment is not achieved, the value of the business will decrease. This article aims to illustrate the importance of the investment risk in the business activities and show the connection between the efficiency of an investment (rate of return on an investment) and the realisation of the main objective of the business's activities (growth) with a special attention paid to the stages of the growth.

2. Market Value Added as the Measure of the Growth of a Business

A condition for growth and the purpose of a business is to maximise the benefits for its owners and these come from the increase in the business's market value (Damodaran, 2001, p. 11-15; Ehrhardt, Brigham, 2009, p. 9). In a situation of increasing efficiency of the business, that is the higher growth of the effects compared to the increase in expenditures, the business creates (positive) value that increases its market value. For that reason the purpose of the functioning (growth) of the business should be connected with the formula for maximising the market value added of the business[2] (Rappaport, 1986, p. 77; Stewart, 1994, p. 72-73). For further identification and quantification of the business's purpose it is important to embrace the market value added. Focusing the business's purposes on increasing the market value added leads to a measure based on an economic profit,[3] defined as the economic value added (Micherda, 2004, p. 20).

Economic Value Added (EVA®) is a measure based on a formula of a surplus of revenues over expenses. However, compared to the balance-sheet profit it includes many modifications important for an objective measuring. That measure takes into account also the interests of

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[2] Maximising the business's market value added means multiplying the capital invested in the busines (for example, by the shareholders). On the other hand, maximising the market value of the business's share capital is called the shareholder value creation or maximising the benefits from the owners (for example, the shareholders) from the assets invested in the business, that is the shareholder's wealth.
[3] The economic profit is a profit after tax less the payment for the capital used. It can also be determined by multiplying the value of the invested capital by the difference between the profitability of the that capital and the weighted average cost of that capital.

investor groups by using in its formula the benefits they expect. The benefits expected by the investors are measurable and they translate into their future income. The future income is valued by the market and it is the sum of future discounted incomes generated by the capital. The measure of value based on future income takes into account also the cost of the capital invested in the business. Thus, it eliminates some of the weaknesses of the balance-sheet profit[4] (Dobiegała-Korona, Herman, 2006, p. 357). Assuming that type of growth measure, one should have a close look at the quantification of EVA. The economic value added defines the way the value is created. The sizes of the economic value added depend on economic effects and the business's competitive position in the market reflected in the operating profit, but not only there. From the point of view of the operating results the value is created when Net Operating Profit After Taxes (NOPAT) is higher than cost of capital (internal and external) invested in the business. So, it is expected that:

(1.1)

$$EVA = NOPAT - WACC \times IC\ t\text{-}1\ >\ 0$$

where: NOPAT – Net Operating Profit After Taxes,
        WACC - Weighted Average Cost of Capital,
        $IC_{t\text{-}1}$ - Invested Capital in the period t-1.

NOPAT in the EVA formula is susceptible to only to changes of factors of operating character and it reflects the effects of the real potential of the business resulting from core activities. NOPAT can be determined if the operating profit is adjusted for taxes, which is expressed as follows (Cwynar, Cwynar, 2001, p. 108):

(1.2)

$$NOPAT = EBIT \times (1 - T)$$

where: NOPAT – Net Operating Profit After Taxes,
        EBIT – Earnings Before Income Taxes,
        T – Tax.

Coming back to the formula 1.1, the subtrahend expresses the cost of capital invested in the business (that is the benefit expected by the investors – providers of internal and external capital). EVA takes into account the costs of financing with all types of capital (Dudycz, 2005, p. 164; Kaźmierska-Jóźwiak, 2006, p. 39; Dudycz, 2001, p. 198-201; Dobija, 1997, p. 343). The cost of capital depends on the rate of return determined by the investors that compensates the risk they take. The rate of return for the invested is set by the Weighted Average Cost of Capital – WACC (Buk, 2006, p. 238).

   If EVA_t is calculated *ex ante* – based on future periods t = 1, 2, 3,..., n, then it can be used to measure the effects of the pro-growth activities.[5] If the subject of the growth evaluation is future values of EVA_t, then the total effect ex ante is measured as Market Value Added (MVA) being the sum of the discounted future EVA_t (Knight, 1998, p. 31), which is expressed by the following formula (1.3):

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[4] It should be noted that EVA is after all and all the time a certain category of a profit, most often described as the *Residual Income* or *Economic Profit*, which is the financial result being the effect of deducting from revenues not only operating expenses, but also all the costs connected with financing, including the costs of internal capital (equity).
[5] The Economic Value Added (EVA) can also be used to measure *ex post* the effects of growth activities in the business and then it is quantified based on historical data. Using EVA for ex post evaluation, referring to general considerations, is a historical evaluation of the growth in a given period of time *t* (EVA_t).

(1.3)

$$MVA = \frac{\sum\limits_{t=1}^{n} EVA_t}{(1 + WACC)^t}$$

where: t – time,
MVA – Market Value Added,
WACC – Weighted Average Cost of Capital,
EVA $_t$ – Economic Value Added.

The Market Value Added is a measure of created by the business future added values and its amount bigger than zero confirms that the business has the capacity to create the values "described" by EVA.

As one can see in the MVA formula (1.3), apart from the Net Operating Profit After Taxes (NOPAT), Weighted Average Cost of Capital (WACC) and Invested Capital (IC), there is some discounting, because MVA is a stream (flow) of EVA discounted over time (Cwynar, Cwynar, 2006, p. 35) and reflects the bonus obtained in the market for the capital invested in the business (or, in other words, it is the difference between the market value of a business and the book value of its assets, that is the internally generated value of the firm (Marcinkowska, 2000, p. 28-29)). In this way MVA expresses the current value of the economic value added generated in the future periods of t = 1, 2, 3,..., n (in other words: MVA is the difference between the value of total cash inflows that the shareholders could obtain when withdrawing their capital from the business and the amount invested in shares and reinvested profits (Duliniec, 2001, p. 149). As a consequence the future value of the business expressed in (1.4) will go up by MVA.

(1.4)

V = IC t-1 + MVA

or, it will grow by the sum of the discounted EVA for t = 1, 2, 3,..., n, which can be expressed by the following formula:

(1.5)

$$V = IC_{t-1} + \sum\limits_{t=1}^{n} EVA_t / (1 + WACC)^t$$

where: V – market value of the business (Value),
IC$_{t-1}$ - Invested Capital w t-1,
WACC – Weighted Average Cost of Capital,
EVA$_t$ – Economic Value Added.

The market value of a business, following the 1.4-1.5 formulas, consists of the capital invested at time t-1 and MVA created in the future in t = 1, 2, 3,..., n. So, if the flow of expected EVA in future periods of t = 1, 2, 3,..., n is positive, then the "market bonus" will be added to the invested capital in form of positive MVA. As a consequence the value of the business will grow and the growth of the value will go together with its creation. Otherwise the value of the invested capital will be reduced by the negative MVA. The capital and the business's market value will then be destroyed. The "value destruction" process will be started and there will be degradation instead of growth in place (Cwynar, Cwynar, 2002, p. 86-90). If the sum of the updated (discounted) future EVA is zero, then the value of the business grows only by the equivalent of the capital invested in it.

3. Investment Efficiency and MVA

The importance of investments for a business can be expressed by the following sentence: "Who does not invest, stays in the same place, and who stays in the same place, moves back" (Sitnik, 2006, p. 8). Each investment should assessed from the point of view the expected benefits and the desired relation between the effects and expenditures. That comparison is the basis for an evaluation of an investment (Ostrowski, 1980, p. 34). The concept of a value based on future income (MVA) corresponds with the concept of investment efficiency based on *Net Present Value* (Znaniecka, 2001, p. 58-59; Szablewski, Tuzimek, 2005, p. 125-127; Brigham, Gapenski, 2000, p. 302-303).[6] As we know, the value of an investment is the discounted income generated by the investment less the initial expenditures. It appears that investments as growth factors have to translate into the increase of the business's market value, that is they have to create positive MVA. At this point two possible cases should be considered. First, when the business is created and the value of the investment is equal to the value of the business (the business in itself is an investment) and the created effect of the investment will be at the same time the market value added (MVA). In the second case (the business already exists in the market and has its track record that translates into its future measured by MVA), the market value added of the business is not identical with the investment, as the final value of MVA is influenced by NPV of the investment and the MVA created on the basis of the existing capital.

The most universal approach to determining the income stemming from the use of a new investment is the value based on net cash flows generated by the investment. Assuming that the business is an investment (investments create the business), the cash flows consist of all inflows less expenditures generated by the investment (the business) during its use, that is from the moment the idea to start an investments (the business) materialises to the moment it is finished. After adjusting the cash flows with income tax and all actual expenses made in a given period of time we arrive at the so-called Net Cash Flow (NCF). NCF discounted with the cost of capital[7] (Dębski, 2005, p. 397) describes the value of the investment – the business (V) – expressed by formula (1.6). The value of the investment in that situation is also a special form of the business value as the value of the business is described as the present value of future net cash flows generated by the assets used in the business's activities – it is the economic value of the business resulting from projected cash flow.

(1.6)

$$V = \sum_{t=1}^{n} NCF_t / (1 + WACC)^t$$

where: V – Value of investment – business,
        NCFt – Net Cash Flow during period t,
        WACC – Weighted Average Cost of Capital.

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[6] The Net Present Value (NPV) is a dynamic approach, which means it takes into account the influence of the time factor on investment decisions as well as the whole investment cycle together with the utilisation period. It is the most frequently used approach (method) in real world to measure the efficiency of pro-growth efforts in market economy. NPV is the sum of discounted net cash flows generated by the growth undertaking, that is cash flows brought down to one moment in time in order to unify their monetary value.

[7] The of term Average Cost of Capital in project financing is interpreted as the rate of return required by the capital providers on the investment projects carried out by the business, so a discount rate is used to determine the project's NPV. "Required" means in this case the lowest acceptable (threshold) value for all assets committed to the discussed investment projects.

The difference between the discounted NCF that the investment (business) is to generate in the future and the invested capital (IC) is the Net Present Value (NPV), expressed by the formula (1.8).[8] NPV is the net present value of the cash flows including both cash expenditures connected with the investment (negative flow: ICt-1) and the flows obtained during the utilisation of the project (positive flow) as well as the so-called residual net value, that is the value left after the utilisation of the investment. The main source of creating the value of a business is the execution of investment projects with NPV higher than zero. When NPV = 0, then the discounted net cash flow is only sufficient for the repayment of the capital and coverage of the costs of the capital, so additional value is not created.

(1.7)

$$NPV = \sum_{t=1}^{n} NCF_t / (1 + WACC)^t - IC_{t-1} \qquad IC_{t-1} + NPV = \sum_{t=1}^{n} NCF_t / (1 + WACC)^t$$

So, based on 1.6 and 1.7 the following relation is created:

(1.8)

$$V = IC_{t-1} + NPV = \sum_{t=1}^{n} NCF_t / (1 + WACC)^t$$

As the investment's NPV is equal to the discounted expected future values connected with its (the investment's) future EVA, that is the market value added (Grant, 2003, p. 130):

(1.9)

$$NPV = MVA = \sum_{t=1}^{n} EVA_t / (1 + WACC)^t$$

then, based on the formulas (1.8) and (1.9), the value of the investment in a newly created business is expressed by the same formula as the value of the business and it shows that the investment will only create new value (MVA) when NPV is positive, that is the value of the business will grow above the value of the capital invested in it. All of it shows that the investments are growth factors and are quantified with the same measures (Dobiegała-Korona, Herman, 2006, p. 354). So, it can be assumed that the measure of efficiency of an investment is identical with the measure of growth of a business in the start-up phase and is expressed by the positive net present value (NPV), the formula of which in this situation corresponds with the formula of the market value added. Then the investment (business) "creates" added value. For that reason the relation between growth and investments can be embraced not only from the point of view of creation of added value for the business as the aim in itself, but also as obtaining effects the exceed the expenditures, so – with reference to the investment – obtaining a positive value. So, for a start-up business an investment is favourable when as a result of it the business's market value goes up through the creation of value, that is when NPV is higher than zero (and respectively MVA > 0), which is shown in Figure 1.

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[8]
The formula in its classic form can be presented as follows: $NPV = \sum_{t=0}^{n} NCF_t / (1 + WACC)$.

However, with t = 0: NCF / (1+WACC)^0 = IC (flows are capital expenditures).

Figure 1: The efficiency of an investment in a newly created business:

The Business = Investment   **Investment = Growth**

condition ➡ **NPV > 0, then**

MVA > 0
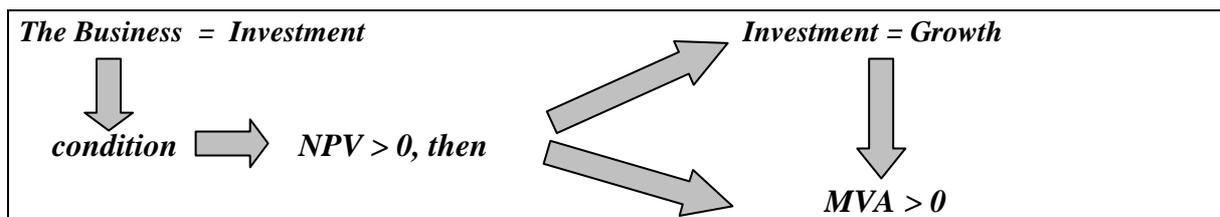
Source: elaborated by the author.

It should be added that another form of creation of the business's value is disinvestments, that is the withdrawal of capital frozen in investments with estimated negative NPV. A direct effect of the withdrawing the capital from a value-consuming investment is the reduction of the business's value. On the other hand, however, the released capital can be reinvested in alternative undertakings creating value (Cwynar, Cwynar, 2002, p. 95; Buk, 2006, p. 238).

If the business already has its track record (it has its market history), then what decided on creation or destruction of value is its NPV and the multiplier effect arising from the effects of the "adding" the investment to already existing assets. In a situation when a new investment generates positive NPV, then the investment "creates" positive value added (ΔMVA), which means that MVA* generated by the business after taking into account the effects of the investment is bigger than MVA that the business would have to create without make the investment, which is shown by the following formula:
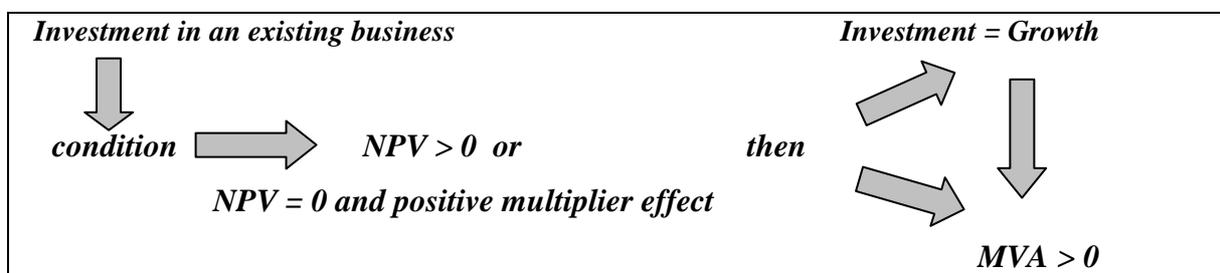
(1.10)

$$\Delta\ \mathbf{MVA = MVA^* - MVA} \qquad \text{whereas:} \qquad \mathbf{\Delta\ MVA > 0}$$

where: MVA – Market Value Added of the business if the investment is not made
       MVA* – Market Value Added of the business with the effects of the investment.

A zero NPV means that the project generates returns sufficient only for covering the investment costs. It could seem that such an investment does not create any additional value for the business. However, it is possible that ΔMVA>0 thanks to the multiplier effect. Such an investment may contribute to an increase in added value although in itself it does not create such a value. What the multiplier effect does is that although the investment in itself does not bring any benefits for the business (NPV=0), connected with the existing potential and future activities it will translate into actual effects for the business (for example, intangible benefits that will only in the future, and not directly, increase the value of the business, for example through contacts and relationships with clients). The influence of the investment on the growth of an existing business is presented in Figure 2.

Figure 2. The efficiency of an investment for a business already operating in the market

Investment in an existing business   **Investment = Growth**

condition ➡ **NPV > 0 or**   **then**

NPV = 0 and positive multiplier effect

MVA > 0

Source: elaborated by the author.

Do not discuss a situation when NPV<0, that is when the investment generates an economic loss. In such a situation the business abandons the investment as it is rather unlikely that the multiplier effect could lead to higher MVA. It is thus assumed that the multiplier

effect does not lead to ΔMVA>0. In reality, such an investment would consume value, that is MVA* generated by the business with the multiplier effect taken into account would be lower than MVA created by the business without making the new investment (ΔMVA<0) – a destruction of value would occur. So, for an investment made by an existing business (that is possessing a specific market value) to bring the desired effects and to create additional value for the business, MVA should also grow resulting in ΔMVA>0.

4. Summary

A business to survive in the market has to grow, that is to take actions resulting in better use of the broadly understood business resources (higher efficiency of the used resources). Thanks to its growth the business achieves its objective quantified by maximising the Market Value Added (MVA) and at the same time maximising the benefits for its owners. One of sources of the growth of the business's market value is new investments and, what is more, investments and the business's market value are quantified by the same measures.

The connection between the growth and investments can be viewed not only from the point of view of the creation of the business's market value as an objective in itself, but also as obtaining effects that exceeds the expenditures, so, in the case of investment projects – achieving positive NPV, while in the case of the growth – positive MVA and pointing to the similarity of those two figures.

A necessary condition for a new investment to be a source of growth of the market value and the instrument in the execution of the business's growth plans, is that the project's net present value is positive. When NPV=0, the discounted future cash flows are just sufficient to repay the invested capital and cover its costs, which means that no additional value is created. Negative NPV "destroys" ("consumes", "degrades") the business's value.

Taking into account the life cycle of a business that makes new investments, we can see two cases – when the business is a start-up (is in the creation phase) or when it already has its own market track record. In the first case the value of the investment is equal to the value of the business (the business itself is an investment) and the created effect of the investment will be at the same time the Market Value Added (MVA). In the second case – when the business is already operating in the market and making new investments – the value of the investment translates into its future measured by MVA, but it is not identical with it, as the final MVA is influenced by NPV of the investment and MVA created on the basis of the existing capital. Whether or not a specific investment creates or destroys value, it depends on its NPV and the multiplier effects created as a result of "adding" the investment to the existing assets.

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