

MANAGEMENT AND ANALYSIS OF FINANCIAL ADDED VALUE BASED ON ECONOMIC PRINCIPLES

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Abstract: : Financial consulting agencies and stock markets, generally, have used lately new approaches to measure company’s economical and financial performances. The principle that lays at the basis of these new approaches is represented by the creation of value for shareholders, the increase of their value, but not in any conditions. The accent is laid on the source of the new value that was created, on the value quality and, especially, on the risk taken, the traditional measures of performance being replaced by the term financial value added. From the category of financial added values the most frequently used for evaluating management performances is the economic value added, which has a significant impact on the organizational behavior. Economic value added is superior to any traditional measure used to evaluate value or performance because it recognizes the cost of invested capital and implicitly through it relates to the risks of a commercial company’s activity. The objective of maximizing economic value added is the consequence of a financial strategy, while the maximization of measures based on profitability may lead sometimes to unwanted situations. In this paper I proposed a model of factorial analysis of the economic value added which includes the key factors for creating economic value added. The main advantage of this model is represented by the identification of growth engines for economic value added.

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Key words: financial added value, residual profit, economic value added, average cost of invested capital, operating cash flow.

1. INTRODUCTION

The approach in terms of value for shareholders represents the company’s management direction towards shareholders interests, in order to maximize their wealth.

During the last years, new approaches for measuring economic company’s performances circulate on the stock markets, the main principle of these approaches being the creation of value for shareholders, using the notion of financial added value.

The financial added value is not a recent discovery, but over the time is was known under different names.

Residual profit, calculated by deducting from the operation profit the financial expenses related to capitals, is an accounting measure of performance. The idea of residual profit has appeared in 1917, it was introduced by Professor Church, but it was finalized from a pragmatic point of view only in 1960.

Economic profit, represented by net incomes minus the interest related to invested capitals, was defined for the first time in 1890 by Alfred Marshal, but the real research of

economic profit appears only in 1970, as result of Finnish academicians' researches (Helfert, 2006).

In practice several **types of financial added values** are used. (Palepu, et al., 2010)

a) Economic value added reflects the surplus of value which results from the profit relative to operating activity, resulted after covering the costs of invested capitals, so it is an indicator which shows us what happened to the shareholders' wealth during a financial exercise.

The term of economic value added (EVA – in English) was defined for the first time in 1990 by the company Stern Stewart & Co.

b) Market value added represents a surplus of market value of commercial companies' invested capitals, above their accounting value, resulted on the basis of the trust granted by investors.

If the market value of invested capitals is higher than their accounting value, then the commercial company creates value for its shareholders.

If the market value of invested capitals is smaller than their accounting value, then the commercial company has destroyed value.

The term of market value added was defined for the first time still by the company Stern Stewart & Co, as another measure for performance and value, used first for listed companies, the Swedish specialists adapting it later also for companies which are not listed.

c) Adjusted economic value added was introduced for the first time by Villiers in 1997.

d) Refined economic value added was defined and introduced for the first time by Bacidore in 1997.

e) Shareholder value added was introduced by Lek Alkar Consulting Group and Alfred Rappaport.

f) Cash value added, term defined and introduced by Ottoson, Weissenreider and Mayers.

These measures of commercial companies' performance are based on cash flows, except the first two types of financial added value, that is economic value added (EVA) and market value added, which are based on the results of operating activity, even if there are some types of calculations based on financial flows.

The major advantages of these modern measures for commercial companies' performance compared to other traditional measures of profitability are:

- they take into account the risks;
- they operate in terms of created value.

The limits of financial added value indicators where presented in a study made by the well-known financial expert, W. Norton, who showed that these indicators are useful for evaluating performances only as completion indicators, because the aggregation of these two complex phenomena, earning and risk, raise the problem of their interaction, generating a series of perturbations such as compensations or self influences , or mutual support.

A huge drawback of these financial indicators is represented by the mutual influences between phenomena, that means that a phenomenon is in the same time or at very short intervals, the cause and the effect of another phenomenon, fact scientifically defined as circular reference.

Another problem is represented by the division into periods, that is the correct seize at a certain moment of a phenomenon which develops on several periods. No matter

the type of indicators used, the phenomenon is ubiquitous from objective causes to activity development. (Brealey , et al., 2006)

Another problem is represented by the phenomenon of accounting distortion, which no matter the corrections made (according to economic or financial principles) will continue to affect the relevance of calculus elements.

From safety reasons, it is recommended to use the indicators of financial added value together with the traditional measures for performance. In spite of all these, a series of empirical studies have proved that financial added values are more relevant in explaining market prices compared to classical indicators.

From the category of financial added values presented above, the most frequently used for evaluating managerial performances is the **economic value added**.

Economic value added (EVA) is based on the principle that shareholders must earn a sum big enough to cover the risk taken by investing their capital.

The following situations can be distinguished:

- **EVA > 0**, it means to get a value bigger than the expected one;
- **EVA < 0**, it means that there is no real profit to satisfy the shareholders' interests ;
- **EVA = 0**, it means that performances are considered to be sufficient, because the earnings meet the shareholders' expectations, covering the risks taken by investing their capital.

This indicator can also be used to evaluate the company, getting the same results as the method of cash flow actualization, only under the conditions in which the depreciation is reinvested totally, and the reimbursement of installments for possible loans is made on its basis. The company's value increases if the investment profitability is higher than the invested capitals' cost and decreases in the opposite situation.

2. OBJECTIVES

As expression of creating wealth for shareholders, the principle of economic value added represents the guide to investing money in a business.

A business adds value to shares only if the net results obtained in the operating activity are big enough as to cover the costs of capitals invested in a business by shareholders and creditors, but to cover the state fiscal pressure too.

Economic value added represents the value created after the satisfaction of the investors' needs for profitability, therefore implicitly the risks included in the elements' cost .

Actually, economic value added is a surplus of value, which creates wealth for owners, after covering all risks. (Siminică, 2008)

The indicator can be considered from two hypostases:

- as surplus of value which leads to increasing the shareholders' wealth ;
- as safety element, which is created after the covering of costs.

Capital investors have several alternatives to invest this capital, their remuneration assuring the satisfaction of profitability and risk needs after which they guide themselves. (Simion, 2009)

Individual costs of invested capital elements are formed from the expected levels of profitability expected by the suppliers of financial resources which include different levels of risk.

Thus, the cost of own capital is given by the profitability level expected by shareholders, which must cover the risk of investing in the company's shares, plus an

additional profitability larger than the one in the case of investments without risk. (Monea, 2007)

The cost of borrowed capitals is given by the profitability level expected by creditors, which must of course cover the risk of investing the money in financing the company, plus an additional profitability larger than the one in the case of investments without risk.

3. METHODOLOGY

In order to calculate the economic value added, there must be taken into consideration two principles:

- the economic principle to create results;
- the financial principle to create performance.

Economic value added can be calculated:

- according to the operating result, case in which it is known under the name of economic gain;
- according to the operating cash flow, case in which it is known under the name of economic cash flow.

3.1 Calculation of economic value added on the basis of the operating result

a) According to the economic principle to create results, economic value added is calculated as difference between the operating result corrected with the due tax on profit and the cost of invested capitals, with the formula:

$$EVA = (RE - IPRE) - K_{CINV} = REN - K_{CINV} \quad (1)$$

where:

RE – operating results;

IPRE – tax on profit relevant to the operating result, already paid;

K_{CINV} – cost of invested capital (monetary units);

REN – result of net operating.

b) According to the financial principle to create performance, economic value added is obtained by multiplying the volume of invested capitals by the percentage difference between the rate of net economic profitability and the weighted average cost of invested capitals, using the formula:

$$EVA = CINV * (RREN - \bar{k}_{CINV}) \quad (2)$$

where:

CINV – invested capital;

RREN – rate of net economic profitability;

\bar{k}_{CINV} – average cost of invested capitals.

Within the first calculation method, the operating result was corrected with the tax on profit. The deduction of tax on profit relative only to the operating activity must be done cautiously. The indicator is calculated by applying to the operating profit the tax rate in force.

The following situations must be taken into consideration:

a) If financial activity and extraordinary activity generate losses, then the gross result will be smaller than the operating result, the tax on operating profit being larger than

the effective one. This situation wouldn't be a problem if the only financial expenses were those with interests (which generate the effect of fiscal economy).

b) If financial activity and extraordinary activity generate profit, the reverse problem will appear.

c) Also, the existence of incomes fiscally deductible and of fiscally not deductible expenses may create problems.

In conclusion, the tax on operating profit must be calculated analytically depending on the situation.

3.2. Calculation of economic value added on the basis of the operating cash flow

a) **According to the economic principle of creating operating cash flows**, when calculating the economic value added, the operating cash flow after fiscal correction in taken into consideration from which is deducted the cost of invested capital, with the formula:

$$EVA = (FNE - IPRE) - K_{CINV} = FNEN - K_{CINV} \quad (3)$$

where:

FNE – operating cash flow;

FNEN – net operating cash flow

Because,

$$FNEN = FNE - IPRE \quad (4)$$

but,

$$FNE = ABE - \Delta NFRE \quad (5)$$

results,

$$FNEN = (ABE - \Delta NFRE) - IPRE = (ABEN - \Delta NFRE) \quad (6)$$

where:

ABE – gross operating accumulation

ABEN – net gross operating accumulation, after taxation

$\Delta NFRE$ – variation of need of working capital relative to operating

Taking into account the above mentioned formulas, the calculation formula of economic value added becomes:

$$EVA = (ABEN - \Delta NFRE) - K_{CINV} \quad (7)$$

b) **According to the financial principle of profitability creation**, the economic value added is obtained by multiplying the volume of invested capitals by the percentage difference between the rate of investment profitability and the weighted average cost of invested capitals, using the formula:

$$EVA = CINV * (RRI - \bar{k}_{CINV}) \quad (8)$$

where:

RRI – rate of investment profitability.

3.3. Other representative indicators

There can be distinguished other indicators which emphasize the wealth creation for shareholders.

a) **Creation rate of economic value added (RC_{EVA})** which reflects the commercial company's capacity to create economic value through its basic activity, that of

operating, being calculated as the ratio between the economic value added and the invested capital:

$$RC_{EVA} = \frac{EVA}{CINV} \quad (9)$$

The more efficient the operating activity, which benefits of invested capitals, the less the pressure of invested capital's cost, so the created economic value will be larger.

b) The covering rate of invested capital's cost (RAK_{CINV}) shows the measure in which the operating activity is able to cover the cost of invested capitals and to create or destroy value, being calculated as the ratio between the net operating result and the cost of invested capital:

$$RAK_{CINV} = \frac{REN}{K_{CINV}} \quad (10)$$

4. PROPOSAL OF EVA ANALYSIS FACTORIAL MODEL

In the economic theory and practice there are several models of factorial analysis of the economic value added.

Further on I will propose a model of factorial analysis of the economic value added which emphasizes the correlation between EVA and the turnover; therefore I propose an approach based on the relation with the turnover.

In all models of analysis, directly or indirectly, the turnover plays an essential part. It is the key factor with the highest impact. Although economic value added can be created when the turnover decreases, on medium and long-term the situation will lead to the depreciation of operating activity efficiency and implicitly to the destruction of the value created for the shareholders.

I propose a model which includes the key factors for creating economic value added.

The main advantage of this model is represented by the identification of growth engines for EVA. The proposed model has also the advantage of comparing very easily, on formation steps, the risk.

The disadvantage of the model is that it can be applied only to the growth companies.

The model's equations:

$$\begin{aligned} EVA &= CA * \left(\frac{FNEN}{CA} - \frac{K_{CINV}}{CA} \right) = \\ &= CA * \left[\left(\frac{ABEN}{CA} - \frac{\Delta NFRE}{CA} \right) - \left(\frac{K_{DAT}}{CA} + \frac{K_{CP}}{CA} \right) \right] = \\ &= CA * \left[\left(\frac{ABEN}{CA} - \frac{\Delta NFRE}{CA} \right) - \left(\frac{k_{DAT} * DAT}{CA} + \frac{k_{CP} * CP}{CA} \right) \right] \end{aligned} \quad (11)$$

$$\begin{aligned}
EVA &= CA * \left[\left(\frac{ABEN}{CA} - \frac{\Delta NFRE}{CA} \right) - \left(k_{DAT} * \frac{1}{NrRot_{DAT}} + k_{CP} * \frac{1}{NrRot_{CP}} \right) \right] = \\
&= CA * \left\{ \left[\left(\frac{ABEN}{CA} - \frac{\Delta NFRE}{CA} \right) \right] - \left[\left(k_{DAT} * \frac{1}{NrRot_{DAT}} + k_{CP} * \frac{1}{NrRot_{CP}} \right) \right] \right\}
\end{aligned} \tag{12}$$

$$EVA = CA * [(r_c - f_e) - (e_{DAT} + e_{CP})]$$

(13)

where:

CA - turnover

K_{DAT} - debts cost (cost of borrowed capitals) in absolute value

K_{CP} - cost of equity capital in absolute value

r_c - commercial profitability

f_e - increase of need in working capital relative to one leu turnover

e_{DAT} - pressure of costs related to borrowed capitals

e_{CP} - pressure of costs related to equity capitals

The cost of borrowed capitals in absolute value K_{DAT} is calculated by multiplying the average weighted cost of credits with the volume of borrowed capitals:

$$K_{DAT} = k_{DAT} * DAT.$$

The cost of equity capitals in absolute value K_{CP} is calculated by multiplying the average weighted cost of equity capitals with the volume of equity capitals:

$$K_{CP} = k_{CP} * CP.$$

The key factors of the economic value added, named *engines for creating growth*, are:

F1. *Turnover* (CA) represents the company's business on the market, including the sales of products and services from the main activity (Pv) and the sales of goods from the company's commercial activity. The turnover increase from one period to another represents a possible sign of growth on the market.

F2. *Commercial profitability* (r_c) shows us the recalculated gross accumulation from operation (Aben) which reverts to one leu of turnover. It has the advantage of expressing the average profitability of making profitable the operation activities in terms of potential cash (considering the amortization a calculated expenditure element, which from a financial point of view is a receipt). The bigger the indicator, the bigger the efficiency of making profitable the operation activities.

F3. *The increase of the need in circulating assets related to one leu of turnover or operation financing* (f_e) which shows how much the need in circulating assets has increased from the beginning of the period to its end in order to realize the turnover for the whole period (this turnover is larger than the one related to the previous period). It shows the temporal average change in the efficiency of *Nfre* when the need of funds increase. It values the financial equilibrium of the operation of the current financing activity.

$$f_e = \frac{\Delta NWCO}{CA} = \frac{NWCO_f - NWCO_0}{CA} = \frac{NWCO_f}{CA} - \frac{NWCO_0}{CA} = \frac{\Delta dzNWCO_{(\Delta NWCO)}}{T}$$

(14)

F4. *The pressure of costs related to borrowed capitals*, which shows us the costs of borrowed capitals which were necessary to make the turnover. They depend on the one hand on the weighted average costs of loans and on the other hand on the efficiency of borrowed capitals measured by the number of debts rotations.

The increase of the average cost of debts will have as effect the increase of cost pressure, and the increase of the number of borrowed funds reuses (the increase of the rotations number) will have as effect the decrease of the loans cost pressure.

$$e_{DAT} = \frac{K_{DAT}}{CA} = \frac{k_{DAT} * DAT}{CA} = k_{DAT} * \frac{DAT}{CA} = k_{DAT} * \frac{1}{NrRot_{DAT}} \quad (15)$$

F5. *The pressure of costs related to equity capitals*, which shows us the costs of equity capitals which were necessary to invest in order to get the turnover. They depend on the one hand on the weighted average costs of those capitals and on the other hand on the efficiency of equity capitals measured by the number of rotations. The increase of the average cost of equity capital will have as effect the increase of the cost pressure, and the increase of the number of equity capitals reuses (the increase of the rotations number) will have as effect the decrease of their cost pressure.

$$e_{CP} = \frac{K_{CP}}{CA} = \frac{k_{CP} * CP}{CA} = k_{CP} * \frac{CP}{CA} = k_{CP} * \frac{1}{NrRot_{CP}} \quad (16)$$

Of course each engine of value creation has its own factors of influence.

Being a model based on flows, it can be aggregated on two steps:

- the resources of cash from operation, given by the operation treasury flow;
- the need of operation cash, given by the total cost of invested capitals.

$$\begin{aligned} EVA &= CA * \left(\frac{FNEN}{CA} - \frac{K_{CINV}}{CA} \right) = \\ &= CA * \left[\left(\frac{FNEN}{CA} \right) - \left(\frac{k_{CINV} * CINV}{CA} \right) \right] = \\ &= CA * \left[\left(\frac{FNEN}{CA} \right) - \left(k_{CINV} * \frac{CINV}{CA} \right) \right] = \\ &= CA * \left[\left(\frac{FNEN}{CA} \right) - \left(k_{CINV} * \frac{1}{NrRot_{CINV}} \right) \right] = \\ &= CA * (r_c - e_{CINV}) \end{aligned} \quad (17)$$

The cost of invested capitals in absolute value K_{CINV} is calculated by multiplying the average weighted cost of invested capitals with the volume of invested capitals:

$$K_{CINV} = k_{CINV} * CINV .$$

In this case, the influence factors are:

a) The turnover which can be easily compared to the critical levels of activity level: the minimum level (imposed by the threshold of operation risk in terms of cash) or the maximum level (the threshold of scissors effect);

b) The commercial profitability based on flows (r_c), showing how much cash results from the operation activity to the turnover unit as a result of the operation activity. It is a form of profitability and a generating rate. The factor can help to comparing in detail the operation risk in terms of cash (as minimum or maximum volume of activity).

$$r_c = \frac{FNEN}{CA} \quad (18)$$

c) The pressure of total cost of invested capitals (e_{CINV}) shows us which are the costs of equity capitals needed to make the turnover. They depend on the one hand on the weighted average cost of those capitals, and on the other hand on the efficiency of invested capitals measured by the number of rotations.

$$e_{CINV} = \frac{K_{CINV}}{CA} = \frac{k_{CINV} * CINV}{CA} = k_{CINV} * \frac{CINV}{CA} = k_{CINV} * \frac{1}{NrRot_{CINV}} \quad (19)$$

The increase of the average cost of invested capitals will have as effect the increase of the cost pressure, and the increase of the number of invested capitals reuses (the increase of the rotations number) will have as effect the decrease of their cost pressure.

On steps, by comparing to the liquidity resulted from operation the debts cost, the absolute value to cover the financial risk, and then by comparing the remaining sum to the capital's cost, we can see the coverage of the risk taken by the shareholders and the creation of economic value added.

5. CONCLUSIONS

Economic value added represents a financial measure for performance evaluation, based on an economic-based value, being the expression of the value created for shareholders by the management of the commercial company.

The positive value of the indicator reflects:

- satisfactory performance under the conditions of risk covering
- satisfactory remuneration of all investors;
- surplus of wealth created for shareholders;
- competitive management.

The negative value of the indicator economic value added reflects:

- unsatisfactory performance under the conditions of not covering the risks;
- unsatisfactory remuneration of investors;
- shareholders' pauperization;
- bad management.

Of course, there are specific cases which are an exception to these situations.

The traditional measures of performance, such as financial profitability and net profit per share, although remain important in evaluating the performance of commercial companies, they do not really correlate with the principle of value creation for shareholders.

Compared to the traditional measures of performance, economic value added has a series of advantages and it helps to:

- underlie the creation of value based on the main objective of activity of the commercial company, of the business into which the money was invested, starting from the efficiency of the operating activity;
- correlate the operating activity with the investment and financial activity;
- appreciate in the same time profit and risk;
- it represents an efficient tool to underlie and evaluate the capital allocation;
- it is a useful tool for evaluating a commercial company.

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