

## DYNAMIC METHODS OF ENTERPRISE VALUATION

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### Abstract

*As opposed to the patrimonial assessment methods, which have the disadvantage of being static and past-oriented, the dynamic methods of assessing a company or a business take more into account its future than its present or its past. This paper aims at discussing these dynamic evaluation methods, including those which are specific to the companies listed on the Stock Exchange Market, including the representation of mathematical models which characterize them and by using numerical examples. We expect different values for the same enterprises, depending on the valuation method used.*

**Key words:** Free Cash – Flow method, Available Cash – Flow method, Irving – Fisher model, Gordon – Shapiro model, Bates model, Molodovski Model, Holt model, PER, EVA, MVA.

**JEL classification:** G11, G12, G17

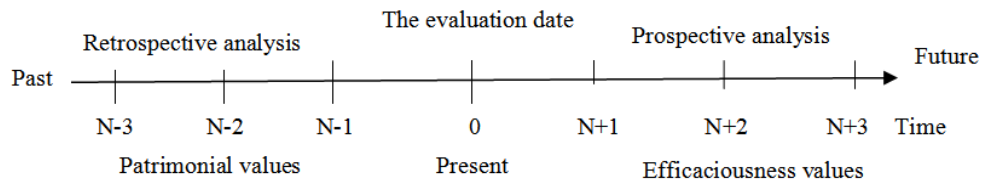
### 1. Introduction

According to the regulations of the valuation international standards (IVSC<sup>1</sup>), the business's efficaciousness values have a greater importance when compared to the patrimonial ones. On the one hand, this viewpoint is being justified by means of the fact that, for a ruling (functioning) business, the efficaciousness methods have a greater relevance, due to the fact that they are *anticipatory*, being based upon *the business's future* and taking into account its *tendencies* in the *strategic* domain (that is in the long service), as well as in the profitable and remunerative domains. On the other hand, the patrimonial methods are useful in the first place in order to estimate the value of a business which puts an end to its activity. They are sometimes used also in order to establish the value of an enterprise which does function, but they can be generally criticized due to the fact that they are based upon *the business's historical values*, which are eventually transformed into *actual values*, available at the evaluation date.

Consequently, the point of view's differences between the patrimonial and the efficaciousness values can be enhanced as it follows:

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Source: [Deaconu, 2002, 99]

**Fig. 1. A comparison between the patrimonial and the efficaciousness values**

The efficaciousness values are being market values. This is due to the fact that they are being based upon market information or information derived from the market's conditions, altogether with information which emphasizes the specific nature of the evaluated business. Among the market information we can find: the profitableness rates of the alternative investments, the advantages offered by the held control, the advantages or the disadvantages of the lack of liquidity [Deaconu, 2002, 99], the economic, political or fiscal conjuncture (where information such as the inflation rate, the interest's rate, the level of duties and taxes, the exchange rate etc. proceed from).

## 2. Patrimonial valuation methods vs. dynamic valuation methods

*The patrimonial valuation methods* present the disadvantage of being static and past-oriented, and in order to determine a series of specific values we must take into account a series of consequences such as: the fiscal impact, the enterprise's bankruptcy, the prices' evolution, the evolution of the national currency exchange rate. In order to eliminate these insufficiencies, there are being used basic evaluation methods based upon efficaciousness, which focus on the *enterprise's efficaciousness* and also on the *business's perspectives*.

*The dynamic methods of enterprise valuation* are more concerned with its *future* rather than its *present* and tackle *the atomizing of the assets studied at the actual value of the profitableness future flows*. In this direction the research is being pointed at the updating of the future flows, and in this sense we must know the values of: the treasury flows emitted by means of the business's exploitation, the dividends discharged to the shareholders, the profitableness supplement produced by the studied investment as compared to the moment's market conditions (that is EVA – the Economic Value Added), thus resulting the three approaching directions, which are the following: [Păvăloaia W., Păvăloaia D., 2006, 46].

*2.1. Approaches on the basis of the treasury cash-flows*, which suppose measuring the value of an enterprise financed by shareholders, by means of the updated value of the treasury flows which are going to be emitted by the enterprise. There are several approaching methods:

- **The method of the free cash-flow**, which directly connects the value of a company's shares by means of its capacity to emit an available treasury and which can be distributed to the shareholders in the form of dividends or invested in new projects. The free cash-flow (FCF) is being determined either by starting from the gross exploitation surplus (GES), or from the net result, in which case the enterprise's value is being obtained with the following relation:

$$V = \sum_{t=1}^{\infty} \frac{ACF_t}{(1+i)^t}$$

- **The method of the available cash-flow (ACF)** deals with the enterprise as if it was an investment project which has, on the one hand, a certain value volume of involved assets (Stockholders' Equity + Financial Liabilities), and, on the other hand, production means which correspond to the exploitation immobilisations and the necessary circulating funds. ACF is being determined with the following relation:

$ACF = Ep \times (1 - ip) + Depreciation \text{ and } Provisions - \text{The increase of the necessary circulating funds} - Investments + Assets \text{ selling}$ . The enterprise's value is given by the relation:

$$V = \sum_{t=1}^{\infty} \frac{DCF_t}{(1+i)^t},$$

where we have:

Ep - The share of the economic profitableness,

ip - The income tax share,

i - The update coefficient,

t - The year (the period) belonging to the  $[1, \infty)$  interval.

The method of the available cash-flow (DCF = "Discounted Cash Flow") is being translated by a treasury flow reduced by means of update, as well as the interruption in the prognosis year "n" (the last year of the explicit foresight period), when the residual value of the assets, the business or that very company is being calculated. According to this method, the evaluation formula is the following:

$$V(DCF) = \frac{CF - I_r}{(1+i)^n} + \frac{V_r}{(1+i)^n} = \frac{CF - I_r + V_r}{(1+i)^n}$$

In which:

V (DCF) = the value of the assets or of the company by means of the reduced (updated) treasury flow;

CF = the (available) cash flow;

I<sub>r</sub> = the renewal or maintaining investments;

V<sub>r</sub> = the residual value;

i = the update coefficient;

n = the last year of the prognosis horizon (forecast).

The essence of this method consists of summarizing the availability flows which remain each and every year at the enterprise's disposal until the year 'n', when it is being estimated that the owner (the owners) should reconsider the way of approaching his (their) business. In this 'n' year it is being established *the residual value* of the enterprise (the residual value is going to be the greater the explicit forecast period is smaller, thus in a proportionally reversed relation with this one).

According to the method, the enterprise's valuation is being made according to *its future developing perspectives*, being considered above all a *futuristic method* (it is based

upon the future of the business or of the valuated company). The method uses the financial principle according to which the value of an asset is equal with the updated value of the net availabilities flows (cash-flows) suspected of being emitted (generated) in the future by that respective asset. The update of the net flows is being made by also taking into account the risks (the exploitation, financial, global or total and bankruptcy risks), as well as the buyer's (the investor's) profitableness exigency.

The putting into practice of this technique is being made in four successive stages, which are the following: [Toma, 2007, 110]:

1) The calculus of the historical net liquidity flow (minimum three previous years). In this case there are used all the findings from the general and the sector diagnosis, apart from the financial – bookkeeper one.

The flow of historical net liquidities can be calculated starting from the net profit to which there can be brought adjustments, or starting from the gross exploitation surplus:

$CF = GES - \Delta NCF - Ir - \text{the income tax} + \text{the financial result} + \text{discharged (net) assets}$ , where:

CF – the net cash-flow,

NCF – the necessary circulating funds,

Ir – the renewal investments.

2) The projection of the net liquidity flow on a period as long as possible, but compatible with the forecast horizon of the enterprise; this supposes, first and foremost, a good understanding of the past flows in order to anticipate as loyally as possible the future flows, thus a good vision of the sales volume, the level of prices, the structure of the exploitation costs and the capital expenses.

3) The determination of the residual value which is going to be added to the sum of the flows discharged by the enterprise. At the end of the projected period, the enterprise holds a certain value which needs to be estimated.

Although in the first place it might seem relatively simple, the valuation by means of the availability (pecuniary) flows update method is very complex when it comes to applying it, due to the real estimation of the anticipated flows, the estimation of the residual value, the estimation of the capital's balanced medium cost or of the updating share which, for the companies which are not rated to the stock exchange, remains very difficult to be measured and which must eventually undergo certain corrections if the economic, the financial risk or both of them (the global risk) are being modified by means of the proposed (and effectuated) acquisition.

Despite its limits, the model of updated availabilities flows (DCF – Discounted Cash – Flows) is the most utilised one in the financial (practical) world. Once the needed information is collected, there can be performed a thorough study concerning the enterprise, also taking into account: the enterprise's strategy, the market's risks, the financial structure, the enterprise's profitableness etc., which, by adopting different hypotheses, allows for the model to be rendered flexible and adapted to enterprises with different activity profiles. Furthermore, the method has the advantage that it enhances the fundamental principles of evaluating the enterprise and being considered objective because it is not influenced, conceptually speaking, to the speculative issues of the financial market.

Therefore, this evaluation method of the enterprise by means of updating the future liquidities (availabilities) flows represents the most satisfying valuation technique from a conceptual point of view, but also the most complex one when it comes to putting it into practice.

Example:

The treasury flows (the cash-flows) of a trading company estimated for an (explicit) prognosis horizon of four years' time are holding a value of € 2.000, € 2.500, € 2.300 and € 2.700. The residual value specific to the non-explicit forecast interval (the time period subsequent to the 4 years of the explicit prediction horizon) has a value of € 14.700. The update share established by the assessor(s) according to the medium rate of the banking share given to the customers and the financial and the economic risk specific to the evaluated enterprise has a value of 22%. The global value of the enterprise according to the method presented theoretically above is being calculated in the following manner:

$$V_g = \sum_{t=1}^n \frac{CF_t}{(1+i)^t} + \frac{V_r}{(1+i)^n} = \frac{CF_1}{1+i} + \frac{CF_2}{(1+i)^2} + \dots + \frac{CF_n}{(1+i)^n} + \frac{V_r}{(1+i)^n}$$

$$V_g = \frac{2.000}{1+0,22} + \frac{2.500}{(1+0,22)^2} + \frac{2.300}{(1+0,22)^3} + \frac{2.700}{(1+0,22)^4} + \frac{14.700}{(1+0,22)^4} = \text{€}2.410\_thousands$$

At present, the consultancy firms possess software which, by using the data from an enterprise, can offer calculation variants of the available funds (the exchequer fluxes).

When practising the evaluations on the basis of the liquid assets fluxes, it is being proceeded the same as with its anticipatory calculus, on a time interval comprised between 3 and 7 years, as it is being presented in the first table. This anticipatory calculus takes into account the following elements:

- The calculated (anticipated) net profit;
- The annual repayment, by means of applying an annual medium norm upon the value of the corporal immobilizations or as a percentage rate in the turnover;
- The anticipated supplementary investments;
- The modification of the necessary circulating funds (NCF).

Table no. 1: The calculus of the available funds' flux

Current Number	Calculus elements	Time span		
		N+1	N+2	N+3
1.	Net profit	125.000	129.000	135.500
2.	Repayment	30.000	32.000	35.000
3.	The modification of the NCF	+ 5.000	+ 7.000	+ 12.000
4.	Supplementary investments	90.000	100.000	105.500
5.	The liquid assets' flux (1+2-3-4)	60.000	54.000	55.000
6.	The residual value (VR=55.000 x 4)	-	-	220.000

Source: [Păvăloaia W., Păvăloaia D., 2006, 264]

The calculus of the residual value is being regularly obtained by correcting the available funds' flux from the last anticipating year with a coefficient established on the basis of some enterprises' experience, whose activity has arrived to maturity, a coefficient comprised between 3 and 6 (in our case we have considered it as being equal to 4).

2.2. *The methods of stock exchange valuation* are being applied in the particular case of the companies rated to the stock exchange. It is being based on the course of the companies' shares and reflects the way in which these are being evaluated on the financial market. The course or the share's rate also called **rating** is being set by independent organisms, but in correlation with a detailed and thorough economic – financial analysis of the enterprise.

Referring to the capacity of the stock exchange rating of presenting as truth-like as possible the future health of the enterprise, there are two dominating theories [Păvăloaia W., Păvăloaia D., 2006, 266]:

- **The theory of the aleatory evolution**, according to which the analysis of the evolution of the stock exchange's main indicators from a significant number of years ( the transactions volume, the exchange rate, the stock exchange indicators), cannot anticipate precisely the future evolution of the enterprise on scientific grounds.

- **The theory of the efficient market hypotheses**, according to which, due to the utilization of the modern techniques calculation of the stock exchange indicators and also due to the modernising of the economic – financial analysis by means of *mathematic reshape*, under these conditions there are being created the pre-requisites for the daily course of actions to loyally reflect their real value.

The specialized literature knows several patterns of evaluating the shares of a company rated to the stock exchange. What is specific to these patterns is the fact that they all have as their starting point the past and the present achievements and the fact that they anticipate the future values.

In the stock exchange domain, the income which is being obtained from the shares investments is the dividend that the investor shall get. This means that the present value of a share is equal with the updated sum of the anticipated future equity which that very share generates. These methods are being mainly used in order to evaluate the enterprises rated to the stock exchange, but they do not eliminate their use for the enterprises which are not rated.

The approaches made by means of dividends flows place importance upon attracting shareholders by means of profitable dividends. There are several calculation methods known, among which:

- **The Irwing – Fisher model** considers that the dividends which must be received are constant, and the value of a share concerns the updated value of the dividend flows which are to be received by the shareholders:

$$V = \sum_{t=1}^{\infty} \frac{D_t}{(1+i)^t},$$

where:

D<sub>t</sub> – The global dividend from the t year,

i – The update factor.

According to this model, the update value of a share (V<sub>0</sub>) corresponds to the updated value of the future dividend flows, which are to be received (cashed) by the shareholders, the dividends being essentially net flows, as they are being calculated after the income tax has been deducted and they are determined according to the following formula:

$$V_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+i)^t},$$

where:

$D_t$  – The dividend paid in the  $t$  year,

$i$  – The update coefficient (rate) which corresponds to the own funds,

$t$  – The finite number of forecast years.

While establishing this pattern there has been taken into account the fact that the dividends which are to be received (cash) by the shareholder are constant (at the level of the last dividend or of the average of the last distributed dividends). Thus conceived, the basic formula turns in the form of  $D$ , a perpetual revenue which gets updated with that updating coefficient  $i$ , and thus the above relation becomes:  $V = D/i$ .

- **The Gordon – Shapiro model** has as a starting point the fact that *the dividends are not time-invariable* and consequently the value of a share is fundamented upon the following elements:

$$V = \frac{D_1}{(i-g)},$$

where:

$D_1$  – the actual dividend received by the shareholder,

$i$  – The update factor,

$g$  – The increasing rate of the dividends.

The above relation can be also written as it follows:  $i - g = D_1/V_0 = e$ , where  $e$  signifies the global efficaciousness of the dividends or  $i = e + g =$  efficaciousness + the increasing rate. Consequently, this model can be either used in order to establish the value of a title  $V_0 = D_1/(i - g)$ , or for determining for a known exchange and efficaciousness the increasing rate of the dividends to infinity.

In order to *better anticipate the future*, this model eliminates the constancy hypothesis of the dividends and considers that the dividends which must be received are accompanied by a rate increasing to infinity.

Examples:

1) A company rated to the stock exchange holds shares which emit for the shareholders a global efficaciousness of 5% when it comes to the dividends. For the risk class where the enterprise belongs, the market asks for a profitableness of the own funds having an 11% value. The value of the first cashed dividend is €10.

Since the risk rate ( $i$ ) and the dividends' efficaciousness ( $e$ ) are being known, we can determine the dividends' increasing rate; from the relation  $i = e + g$  we find out the size of  $g = i - e = 11\% - 5\% = 6\%$ . Therefore, the value of the share shall be:

$$V_0 = D_1/(i - g) = 10/(0,11 - 0,06) = 10/0,05 = \text{€ } 200.$$

2) A company has been rated to the stock exchange starting with the year 2003. The last received dividend for a share has had a value of € 20. For the future periods it is expected an increase of the dividend in an annual 7% rhythm up to the end of the third year,

for the following three years the increase has a 5% value and a 3% to infinity increase. It is also known the risk rate specific to the activity sector where the firm belongs to, that is 10%.

In this case there appear the three sequences characterized by means of their increasing dividends rates and therefore the value of the share is being calculated as it follows:

$$V_0 = \frac{20 \times 1,07}{1,10} + \frac{20 \times (1,07)^2}{(1,10)^2} + \frac{20 \times (1,07)^3}{(1,10)^3} + \frac{20 \times (1,07)^3 \times 1,05}{(1,10)^4} + \frac{20 \times (1,07)^3 \times (1,05)^2}{(1,10)^5} + \frac{20 \times (1,07)^3 \times (1,05)^3}{(1,10)^6} + \frac{20 \times (1,07)^3 \times (1,05)^3 \times 1,03}{(0,10 - 0,03) \times (1,10)^6} = \text{€}42,78$$

- **The Bates model** gives us more information about the price we should pay for a title in order to get certain profitability, taking into account the hypothesis of a re-sale price and the dividends which must be cashed:

$$V = \sum_{t=1}^n \frac{D_t}{(1+i)^t} + \frac{V_n}{(1+i)^n},$$

where:

$V_n$  – The value of re-sale in the year  $n$  (the final updated value  $\Leftrightarrow$  the residual value),

$D_t$  – The cashed dividends in the period/ lapse of time  $[1, t]$ ,

$i$  – The update factor (the profitability rate asked or expected by the shareholders).

The method has been extensively used at the beginning of the 90s and it is being characterized by a laborious theoretical substantiation, flexibility when it comes to utilization and a finite shaping horizon, these also being advantages which recommend it in order to be used. As a starting point it has the previous model (Gordon – Shapiro) and by considering it thoroughly it introduces the following elements: one or more successive periods during which the increasing rate of the results and implicitly of the dividends is being constant, a residual value. *The updated value of an enterprise is equal with the updated sum of the dividends specific to the  $[1, n]$  period, to whom we add the updated final value in the  $n$  year (that is the enterprise's residual value, at the end of the explicit forecast period).* Consequently, the above calculus can be also written in this way:

$$V_0 = \frac{D_1}{1+i} + \frac{D_2}{(1+i)^2} + \dots + \frac{D_t}{(1+i)^t} + \frac{V_n}{(1+i)^n}$$

The model provides us with information about the price (PER = Price Earning Ratio, calculated as a report between *the share's exchange rate* and *the net income per share*) that must be paid in order to buy an investment for obtaining an expected profitability ( $i$ ), taking into account the hypothesis of a re-sale price and the increasing (developing) perspectives of the enterprise. Starting from an actual PER considered as being normal, the model allows for determining a re-sale PER beforehand, or the other way around, starting from a re-sale PER (or an outlet one), according to the provisioned increasing rate, for justifying an actual PER, thus a market value at that very moment.

There are two main utilizations of the Bates model:



- When it comes to determining the maximal acquisition value of a company, in order or the investor to get the efficaciousness rate set as a profitableness objective;

- While dealing with the valuating of an investment, starting from the forecast of the result on a medium service and an expected share depending upon the market risk associated with that respective company.

In practice, the valuation of an enterprise by means of the Bates (model) method supposes the following:

1. Setting an outlet horizon (the re-sale of the titles), on a medium service, three or five years, according to the elaborated business plan;

2. Using an update rate, the risk rate or the cost of the personal funds;

3. Determining the value of re-sale starting from an outlet PER chosen by referring to the one of a company rated from the same activity area.

Example:

A company carries on its activity in an area for which the investors expect a profitableness rate of 10%. Taking into account its developing policy, the annual increase of the income is being estimated to 10% for the next three years, as opposed to the 7% forecasted at the level of the sector to which the firm belongs. The gross distribution rate has a 25% value. The outlet PER is being asked to be determined, knowing that the actual PER has a size of 20. What is also known is the fact that the net share profit for the past year has had a € 1.000 value.

The PER outlet calculus after 3 years' time can be found by means of applying the Bates method:

$$V_0 = \frac{D_1}{1,10} + \frac{D_2}{(1,10)^2} + \frac{D_3}{(1,10)^3} + \frac{V_3}{(1,10)^3}$$

$$\frac{V_3}{(1,10)^3} = V_0 - \left( \frac{D_1}{1,10} + \frac{D_2}{(1,10)^2} + \frac{D_3}{(1,10)^3} \right)$$

$$\frac{V_3}{(1,10)^3} = 20 \times 1.000 - \left( \frac{0,25 \times 100}{1,10} \right) \times \left( 1 + \frac{1,07}{1,10} + \frac{1,07}{(1,10)^2} \right)$$

$$V_3 = 19.935,248 \times (1,10)^3 = \text{€}26.533,8$$

Consequently, the outlet PER from the third year has a value of  $26.533,8 / (1,07)^3 = 26.533,8 / 1.225 = \text{€} 21,66$ .

The method is recommended to be applied especially for the companies which have perspectives of increasing in the medium service superior to the average of the rated companies from that very sector.

- **The Molodovski model** is somehow similar with the first two models, but it approaches the future by means of a model which supposes three time lapses:

➤ The first forecastal period ( $1 \rightarrow n_1$ ) is characterized by a  $g_1$  rate of constant rise;

➤ The second forecastal period ( $n_1 \rightarrow n_2$ ) undergoes a decrease having a progressive manner (hindered exponential increase of the  $g_2$  profit);

➤ The third prognosis interval ( $n_2 \rightarrow \infty$ ) is the one when the dividend remains constant in time.

Under these circumstances, the updated value of the firm will be the following:

$$V_0 = \sum_{t=1}^{n_1} \frac{D_0 \times (1+g_1)^t}{(1+i)^t} + \frac{D_0}{(1+i)^{n_1}} \times \sum_{t=1}^{n_2} \left(\frac{1+g_2}{1+i}\right)^t + \frac{D_0}{(1+i)^{n_1+n_2}} \times \sum_{t=1}^{\infty} \frac{1}{(1+i)^t}$$

The model allows for the configuration of the profits' curve according to the investor's estimations regarding the firm's future profitability and the determination in order to find out the expected efficaciousness rate and the updated value of the profit flows.

- **The Holt model**, presented in 1962, doesn't apply but to the developing companies which have a high PER. Nevertheless, a rising company cannot remain for good in this condition and its PER will, sooner or later, subjoin to one of the enterprises which grow in a much slower rhythm [Brezeanu (coord.), Boștinaru, Prăjișteanu, 2003, 165].

Holt's model determines the recovery duration of the funds invested in a firm (RD), calculated as a number of necessary years in order for the sum of the share net incomes updated with the interest's rate without risk ( $i_r$ ), specific to the economy, to equal the value of the share's course. It is supposed that the whole net profit is distributed to the shareholders (the model is less flexible compared to the Bates model).

$$C_0 = \sum_{t=1}^{RD} \frac{NSP_t}{(1+i_r)^t},$$

where:

$C_0$  – the share's present rate of exchange,

RD – the recovery duration of the invested funds,

NSP – the net share profit,

$i_r$  – the interest's rate without risk.

This formula expresses the enterprise's skill to maintain the increase equal with "g", on a period necessary to reconstitute the share's present rate of exchange by means of the share's net profit. The more reduced the recovery duration (RD) is, the more attractive are the investments [Stancu, 2002, 654].

The model is useful when it comes to valuating the shares (apart from its pretty restrictive hypotheses), guiding the investors towards those shares which have the recovery duration requested by their investments plan.

The recovery duration's theoretical level calculated by means of Holt's model can be compared to recovery periods justified from an economic point of view (by taking into account the life-cycle of the products commercialized by the enterprise, the economic context and the competition etc.) if the duration of theoretical recovery is greater than the duration justified from an economic viewpoint, then the share's PER is over-valuation, the same as the share's exchange rate. Under these circumstances, the recommended decision for the investors is to sell the share.

2.3. *Approaches on the basis of value – creating (Added Value) for the shareholders.* In this case, we use the following criteria to value the enterprise: the Economic Value Added (EVA) and the Market Value Added (MVA) [Pierre, 2004, 271].

The Economic Value Added is an economic category fundamented around the 1980s and it has been first adopted by the Coca-Cola firm, which has argued its option in the following manner: “Our reason for being is precise: the creation of a real value or of income for our shareholders in the long service. We consider that the total efficaciousness which is being emitted for them depends directly upon the economic profit we create. We define the economic profit as being the fraction from thee exploitation result after the tax, which excludes the cost of the global capital” [Ehrbar, 2000, 14].

Although relatively recent, the idea has been formulated at the end of the 19<sup>th</sup> century by Alfred Marshall, who has defined the economic profit as being: “the invested capital multiplied by the difference between the operational profitableness of the invested cash and the capital’s cost.”

Referring to the added economic value, Peter Drucker asserted that it is “a vital measure of the global productivity of the production factors which reflects all the dimensions by means of which the managers can create the value.” The added economic value represents the dimension of the value surplus produced by the enterprise on a given length of time, which can get to one or more financial exercises and has the power to appreciate the management’s quality. The added economic value measures the difference between the profitableness emitted by the assets involved in the production process and the expected profitableness share and requested by the shareholders which have invested their available funds in order to finance the enterprise’s assets. The economic value added is a means of measuring the enterprise’s performance by means of deducting from the obtained result the expenses which represent the cost of the assets’ ensemble used in the exploitation process. Thus it forms the framework of a complex system of financial administration and interest when it comes to the susceptible results in order to guide the totality of the decisions taken by the level of the administration council up to the level of the job’s level, *in order to create as much wealth as possible* (positive financial results) for the shareholders, to improve the existence of the enterprise’s community, of its customers and collaborators. Furthermore, it is being constituted as a practical means to harmonize the interests of the ones who participate to its creation and which is being divided between them, which is why the added economic value is being considered as *the most socialist form of Capitalism* [Ehrbar, 2000, 39].

The economic value added is what the economists call *opportunity cost*, that is the *efficaciousness which the investors hope to obtain if they invest their available funds in a shares’ portfolio and bonds with a comparable risk, to which they give up in order to hold shares at the analysed company*. Mathematically speaking, it corresponds to the result of the exploitation after the tax, once the expenses corresponding to the cost of the employed capital which take the shape of Liabilities or Stockholders’ Equity have been deducted.

The calculus is the following:

$$\boxed{EVA = NOPAT - K \times PMCC}$$

Where we have:

EVA – The economic value added,

NOPAT – The net operating profit after taxes,

K – The total sum of the assets (own + liabilities),

PMCC – the ponderate medium cost of the capital.

In order to also emphasize other factors which alter the size of the added economic value, its calculus can also be reshaped in this way [La Chapelle, 2004, 96]:

- As being the expression of the difference between the net revenue resulted form the exploitation activity and the cost of the Stockholders' Equity and it can also be written like this:

$$\boxed{EVA = ER \times (1 - i_p) K \times PMCC},$$

where we have:

ER – the exploitation's result,

$i_p$  – The tax income share.

From the calculus above there results the fact that the economic value added can undertake one of the following values:

➤  $EVA > 0$ , a favourable situation, when there has been respected and accomplished the shareholders' hope of obtaining positive financial results, the same for managers, employers and collaborators;

➤  $EVA \leq 0$ , a case in which the enterprise reaches a level of performances inferior or equal with the ones expected by the market. Therefore, the enterprise does not create value for the shareholders and represents an unfavourable situation for the economic agent.

Thus approached, the added economic value appears as an administration and leading indicator, which allows measuring the performances of an economic agent or of an investments' act (investments' project). For a financier it represents a means of analysis and decision in matters of investments by calculating the sum which results as a difference between the obtained revenue and the normative costs. For the enterprise, the EVA leads to rendering sensitive the operational reponsibles when it comes to the global cost of the available financial resources. As a rule, these objectives are being fixed prior to this and they find each other again in the size of some indicators which compose the management intermediary balances (the waterfall or the MIB panel), such as: the turnover, the exploitation's result, the gross exploitation surplus (GES) and which it has to maximize.

The same as the financial liabilities, the Stockholders' Equity aren't gratuitous either for an economic agent. The latter should be remunerated according to the market's requirements and realities. In financial terms, starting from the previous relation and knowing the fact that the PMCC is being calculated with the following relation:

$$\boxed{PMCC = \frac{SE \times R_p + L_f \times d \times (1 - i)}{SE + L_f}},$$

where we have:

SE – Stockholders' Equity,

$R_p$  – The profitableness rate of an investment title,

$L_f$  – Financial liabilities,

$d$  – The interest's rate,

And that  $\boxed{R_p = R_0 + \beta \times (P_m - R_0)}$ , where we have:

$R_0$  – The rate without risk (the rate to the state bonds),

$P_m$  – The medium profitableness of the stock exchange market,

$\beta$  – The coefficient risk of the values' market.

By replacing in the calculus relation of the EVA the PMCC equivalent, we get the following relation:

$$EVA = ER \times (1 - i) - [SE \times R_p + L_f \times d \times (1 - i)] \quad \text{or}$$

$$EVA = (ER \times L_f \times d) \times (1 - i) - SE \times R_p.$$

Because the  $D_f \times d$  product represents the financial expenses supported by the enterprise and the expression  $(ER - L_f \times d) \times (1 - i)$  corresponds to the company's current net result (NR), the previous relation becomes:

$$EVA = NR - SE \times R_p = SE \times \left( \frac{NR}{SE} - R_p \right).$$

Since the  $NR/SE$  report actually expresses the profitableness of the Stockholders' Equity, the previous relation becomes:  $EVA = SE \times (r_f - R_p)$ , where  $r_f$  – the rate of the financial profitableness.

According to the previous relation, an economic agent will have a positive added economic value, thus he creates value for the shareholders, but only when the level of the Stockholders' Equity' profitableness outruns the one of the investment's profitableness.

The model can also be applied to the enterprises rated to the stock exchange, in which case, by carrying out a series of mathematical tricks, out of the  $EVA = NR - SE \times R_p$  relation there can be also enhanced other specific factors.

In matters of stock exchange investment, the previous relation is true, with the specification that, for a rated company, the Stockholders' Equity (SE) at the market value actually signify the stock exchange capitalization (SEC), and consequently the incipient relation becomes the following:

$$EVA = NR \times \left( 1 - \frac{SEC}{NR} \times R_p \right).$$

Since the report  $SEC/NR = PER$  (Price Earnings Ratio) and actually shows the recovery term of the investment in shares, the previous formula can be also written in this way:

$$EVA = NR \times (1 - PER \times R_p)$$

From this relation there proceed at least two arguments:

- 1) The higher a company's PER is, the more reduced is its potential to emit added economic value (thus the relation is one of inversed ratio).
- 2) The higher the risk of a  $\beta$  company is, the more it decreases its capacity to emit economic value, thus the profitableness expected (hoped for) by the investors is a risk increasing function.

The calculus of the added economic value supposes the usage of the data reported by means of the book – keeping syntheses, the profit an loss account and the balance sheet.

In the following table we show the EVA's method of calculus:

Table no. 2 – The Calculation of the Economic Value Added

No.	Explanations	Symbol	Measure	The N exercise	The N+1 exercise
1	The exploitation's result	ER	€	20.000	25.000
2	The necessary circulating funds	NCF	€	35.000	40.000
3	The net immobilized assets	Ai	€	50.000	50.000
4	Invested cash (2 + 3)	Ci	€	85.000	90.000
5	The profitableness of the invested assets (1/4)	Pia	%	23,53	27,77
6	The ponderate medium cost of the capital	PMCC	%	11	11
7	The difference (5 – 6)	Pia – PMCC	%	12,53	16,77
8	The economic value added (7 x 4)	EVA	€	10.650,5	15.093

Source: [Păvăloaia W., Păvăloaia D., 2006, 277]

The added economic value is being used further on in order to determine the enterprise's value (Ev) with the help of the following model:

$$E_v = ANA_c + \sum_{i=1}^n \frac{EVA_n}{(1+i)^n}$$

where we have:

Ev – the value of the enterprise,

ANAc – the corrected accounting net assets,

i – The update rate (coefficient),

n – The number of years of the explicit forecast period,

EVA<sub>n</sub> – The economic value added of the last year of the explicit prevision period.

#### *The Limits of Turning to Account the Economic Value Added*

The limits of turning to account the added economic value are the following:

- The uncertainty regarding the previsions of the available exchequer fluxes and their residual value;

- The employment of the capital's cost, which leads to the standardization of the enterprise's internal performances, on the basis of the indicators determined on the financial markets and which are valid on a far less extended temporal horizon than the one due to any investment. The estimation of the utilized capital's cost is being subjective, all the more as this has a determining influence when it comes to the investment of capital or its lack. An incorrect evaluation of this cost (under or over-evaluation) can lead to erroneous decisions and an inefficient distribution of the available resources. As for the under-evaluation, this leads to investments carrying a reduced profitableness and, implicitly, to wasting the resources...The over-evaluation prevents the enterprises from developing in an efficient manner;

- The particular way of managing the value ignores the divergent interests that the users have. The investors, along with the shareholders, are being interested in the enterprise's performances, which leads to discrepancies with the interests of the other users;

- When calculating the value of the added economic value there doesn't appear the obligation of reimbursing the loans, but only the decrease of the employed capital, according as the amount of those specific refunds. Although this leads to the diminution of the capital's cost, it does not influence the transaction's profitability.

All these observations are meant to warn against using the different evaluation indicators of a business or an investment, each having its advantages and disadvantages, according to the analysed type of investment, under the conditions of the existent economic medium and the developing perspectives.

Considering the above, it is being imposed the setting of some approximating criteria in order to locate the applying framework of the different economic and financial performance patterns or concepts, after which, for each case in its turn, there must be diagnosed the relevant measures of value judgement when it comes to grounding the decision. As for the approximating criteria of marking the boundaries of some various analysis situations in time and space, these will need to have as their starting point the economic medium conditions, the type of economy or market of the approaching differences where we operate respectively, an essential aspect being represented by the influence of some project or business upon the analysis' results.

### 3. CONCLUSIONS

In a market economy that undergoes a continuous transformation and in a more and more globalized world, nothing can be seen with certainty anymore, not even when it is being tried to find a value as close as possible to the real one. Regardless the chosen valuation method, there has been a permanent preoccupation with fundamenting a proper *market value*. The obtained results can be considered by their supporters as being the genuine market value of the firm, but yet there can be noticed the fact that all the evaluation methods bear unavoidably the mark of a higher or lower degree of *subjectivism*. Furthermore, we must take into account the fact that any evaluation model is being subjective by means of its own nature. In this way, by means of transforming reality into a (mathematic) model, a part of the elements characteristic for the initial state of the phenomenon are not being taken into account, out of simplification reasons. Moreover, while applying a certain model, some variables that are taken into account as determinants of the final value can be characterized by inaccuracy (measurement errors) or lack of completion (the impossibility to obtain all the necessary data in order to apply the model). Under these circumstances, even if the evaluation by means of *patrimonial* methods would give the most favourable results, a simple omission of some of the firm's assets while calculating its value will offer a lesser market value. While evaluating some *income flows or future cash-flows*, the evaluator's subjectivism is obvious as long as the fundamenting of the necessary indicators while applying the methods is being based upon scenarios offered by that very evaluator. The methods based upon market comparisons cannot be considered as being completely objective either, since the firms taken as a guide mark are being chosen also by evaluators, and thus they are going to bear once again the mark of their subjectivism.

The estimations can be made for enterprises which are going to be founded in the future or for already-existing enterprises, which have already got a *past* and a *present*. The enterprises from the first category are being evaluated by means of specific methodologies which analyse the economic efficiency of the investments (the investments' projects). These methodologies differ up to a great extent from the methodology of evaluating the existing firms, both from the viewpoint of the content, as well as from the viewpoint of the aimed-at objectives. Even if in both situations there are being used some indicators having similar or even identical denominations, such as, for example, rates and updating factors, incomes, costs, profit, cash-flow, the concrete methods of calculation and forecast differ significantly. An essential role is being held, in the case of both methodologies, by *the forecastal calculus*, which nevertheless differ according to their informational background and the utilized methods and techniques. (Maxim Emil, 2008, *Diagnosticarea și evaluarea organizațiilor*, Sedcom Libris Publishing House, Iași, page 67).

The value of an existent business is being influenced by *its past and current situation*, but it is also given by *its future situation*, by the utility it is going to hold for the (present or future) owner. The enterprise's future cannot identify itself with its present and even to a lesser extent with its past, and thus, the simple taking over of the past elements in order to establish the (present or future) value can lead to huge digressions from reality and serious errors in evaluation. Unlike the forecasts for the newly-set up enterprises, the ones referring to already-existing enterprises, are fundamented upon a noteworthy volume of information obtained from *the diagnosis's analysis*. The evaluators will use this information, to which they are going to add new ones, selecting and using the most adequate methods and forecast models in order to get to values which are credible, relevant and useful for the evaluations' beneficiaries.

The main used groups of methods in valuations are the following:

- Evaluation methods based upon assets;
- Methods based upon income: dividends, profit, turn-over;
- Methods based upon comparisons; metode bazate pe comparații;
- Combined methods (for example the goodwill);
- Other methods.

From the viewpoint of the evaluation standards, when it comes to evaluating a business, a greater importance is being held by the efficaciousness values, to the detriment of the patrimonial values. This perspective is being motivated by the fact that, for a ruling business, the dynamic methods have a greater relevance, being *anticipatory*, based upon *the business's future*, taking into account its *tendencies in the strategic, profitableness and efficaciousness domains*.

The methods from the other category, that is the patrimonial ones, are firstly useful for estimating the value of a business which puts an end to its activity. They are also used in order to establish the value of a ruling business, but they can be criticized above all due to the fact that they are generally based upon the business's *historical values*, which are eventually turned into current (brought up to date) values, available when the evaluation is being performed. Therefore, the evaluators resort to *the dynamic methods of estimating the enterprises* also due to *the limits* which the patrimonial values suppose:

- the patrimonial value reflects accumulations realised by the enterprise in time, but not their utility for the owner; in transactions, the one who will take into account this value will be especially the seller of an enterprise, as the buyer is mainly concerned with the enter-



prise's utility and its capacity to obtain revenues (the beneficiary capacity) respectively, and will be concerned with using a value determined this way in negotiations.

- the seller as well as the buyer must have in mind the following limits of the patrimonial values: this represents a part of the enterprise's global value, the other one being given by the value of the non-corporal elements; it is being obtained out of a great volume of calculations, many of them being based upon *estimations* of the evaluating specialists (the wear and tear degree, the corrections of some liabilities' elements, etc.); unlike the efficaciousness/ profitability values used in *the dynamic evaluation methods*, the value obtained as a result of applying the evaluation patrimonial methods does not take into account the enterprise's **future**.

To conclude, the value of a patrimonial entity should be always *current (actual, present)*, since such events as the sale/ the purchase, the rating to the stock exchange market, the fusion, the dissolution, the clearing, the judicial reorganisation, bankruptcy etc., should imply a high degree of precision concerning the value obtained as a result of the estimation.

The further researches will focus on combined/mixed (patrimonial and dynamic) methods of the enterprise valuation.

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<sup>1</sup> <http://www.ivsc.org/standards/index.html>, IVSC – *International Valuation Standards Council* (2007)