



# Determining the Future Value of Money through Alternative Methods Based on Forecast Cash Flows

Gheorghe NEGOESCU\*, Lucean MIHALCEA\*\*

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## ABSTRACT

The future value of money is an important instrument used in the determination of enterprise value as current assets correction. In the current literature there are various variants for calculating this correction. The National Association of Authorized Romanian Assessors –NAARA (ANEVAR in original) approved some of these methods. In this paper I propose to develop a study of determining the future value of money through alternative methods based on forecast cash flows, a study which will be the main issues of determining the current assets correction for obtaining the adjusted net asset value and the global value of the enterprise.

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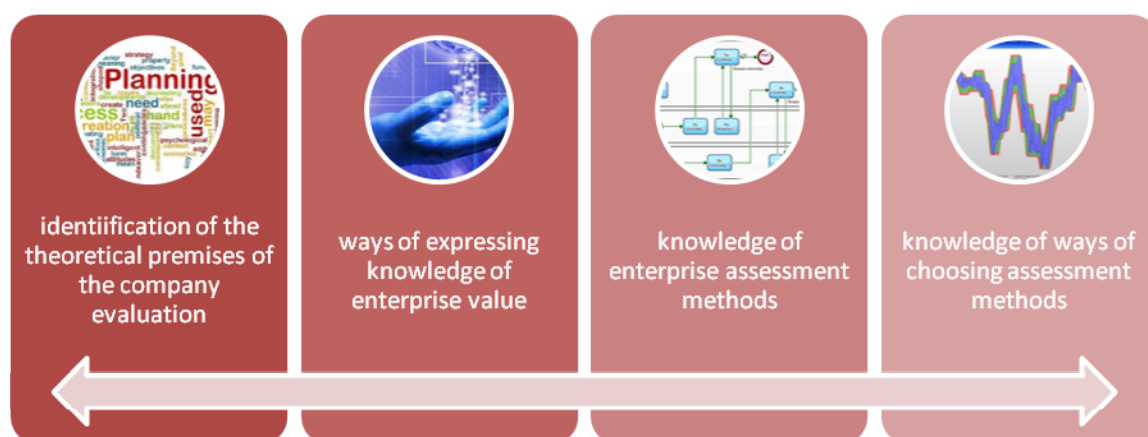
## 1. Introduction

The transition to a market economy and privatization prospects brought to the forefront of economic concerns and the problem of determining the enterprise value. An enterprise is not just the figures recorded in the balance sheet, but much more, because it is a brand, a position within an economic industry and market experience and professionalism, it means its people, items that can not be expressed in figures, but who are part of the enterprise value. Also, an enterprise must be assessed relative to its ability to produce a sustainable future profit (Mihai I.O., 2009).

In the evaluation of the company there should also be considered the order in which the estimate is made, the person requesting (seller, buyer, a third party), and other elements leading to a determination of the choice of a particular method of evaluation.

The difficulty is to choose the methods or the combination of methods that best suits the purpose for which the assessment is made.

### Steps for a good identification of evaluation method



Source: The authors' own contribution

According to ANEVAR Assessment Standards (C15, EVS 200), the market approach compares the subject company with other similar enterprises, with shares in similar businesses traded in the market, as well as any relevant transactions with shares in the subject company.

The three common sources of information (used in the market approach) are: capital markets which trade shares in similar enterprises; market mergers and acquisitions of businesses; and previous transactions with shares of the company subject to evaluation (according to C16, ETS 200).

For the market approach it is necessary for the evaluator to have access to a reliable database containing information regarding the qualitative and quantitative characteristics of the similar businesses selected for benchmarking. The evaluator will conduct quantitative and qualitative analysis, by identifying the key characteristics of the company subject that should be analyzed in comparison with the company identified as similar (for example, there could be analyzed: the geographical area where those businesses operate, figure business, its structure, amount and structure of asset value, profit margins, growth prospects, etc.).

The analysis of quotations of the shares issued by similar companies listed on a stock market or private transactions involving the acquisition of shares in similar companies is usually materialized in calculating certain multipliers. In calculating these multipliers, the evaluator should consider the following issues:

- a) •the precision of the calculation method of multipliers. All calculations must be made in a similar manner, both for the assessed company and for similar businesses;
- b) •transaction price data used in calculating the multiplier should be available at the measurement date.
- c) •use of statistical indicators (eg, mean, median, harmonic mean, etc.) to calculate multipliers based on information available on similar undertakings must be substantiated by the evaluator and adequately fundamented in the evaluation report;
- d) •the adjustment of the level of financial indicators considered for unusual items, exceptional and outside of the exploitation, should be adequately grounded in the evaluation report;
- e) •in the assessment of the subject company, there can be selected several multipliers which can be applied, with the need for the assessor to support his opinion for the selected multipliers in the assessment of the business or shares to a business;
- f) •usually multipliers that have the enterprise value as numerator use as a denominator elements of financial statements which do not take into account the company's indebtedness (such as sales, earnings before interest, depreciation and tax, earnings before interest and tax etc. ) and multipliers that use the value of the business' own capital in the numerator have for the denominator elements of financial statements that take into account the company's debt (ie, net profit, net book value of equity, etc.)
- g) •market information regarding similar companies must be used carefully, many times certain adjustments must be made so that the respective information can be relevant for the assessment of the subject enterprise. Any adjustment to the market information made by the assessor must be justified in the assessment report.

When information about previous transactions is used in evaluation of enterprise, these adjustments may be necessary to take into account changes in the economy, in the field of activity and in the enterprise itself. Previous transactions can be regarded as comparable, only if adjustments can be substantiated, and if after adjustments the resulting values can be considered to be economically feasible in the general and specific economic context, valid at the measurement date.

In the market approach, the evaluator may consider it appropriate to apply premiums or discounts to reflect different levels of control, liquidity / marketability etc. The use and the level of any such premium or discounts will be argued in the evaluation report.

The income approach is used to estimate the value of a business or of a participation by calculating the present value of future economic benefits. The two usual methods of the income approach are: economic benefits capitalization method and the discounted cash flow method.

Capitalization of economic benefits can be used either in the discounted cash flow method to determine the final value, or in the method of updating dividends.

In the economic benefits capitalization method, a representative level annually normalized of benefits is divided by an appropriate capitalization rate.

In the application of the methods of capitalization, the expected growth of economic benefits is taken into account in the capitalization rate. To determine the capitalization rate, the following formula is applied: the discount rate minus the expected rate of increase in long-term economic benefits.

In the discounted cash flow method, the net cash flows are estimated for each of the future periods. These flows are translated into value by applying the discount rate, using update techniques.

Discount rates must be estimated in the same currency in which there are denominated net the cash flows or future economic benefits subject to updating or capitalization.

There must be consistency between the net cash flows and the type of discount rate used. Thus, to the estimated net cash flows after tax there will be applied a discount rate estimated after tax, and to the estimated net cash flows before tax there will be applied the estimated discount rate before tax.

Net cash flows denominated in nominal terms (including future price changes due to inflation or deflation) are updated with nominal rates, and net cash flows in real terms (constant prices) are discounted using the discount rate expressed in real terms.

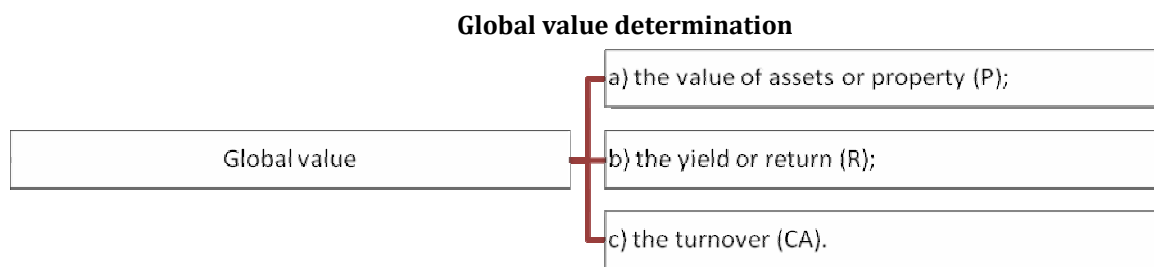
Similarly, the growth rate expected for long-term economic benefits must be substantiated and clearly expressed in nominal or real terms, as appropriate.

The value of the enterprise is usually determined by discounting the net cash flows at the disposal of the company with the company's weighted average cost of capital. Equity value can be determined directly by discounting net cash flows to shareholders with the cost of equity, or indirectly, by subtracting the net interest-bearing debt from the enterprise value.

## 2. Asset-based approach

Given that in practice there are many ways of choosing a specific evaluation methods of a business or its assets, it is necessary for managers to know what choices are available and which are the determinants in deciding which method is best for well cases of companies they manage.

It is believed that there are numerous methods for determining the overall value (VG), an undertaking that differs only in what concerns the importance given to three fundamental quantities showed on the bellow graph:

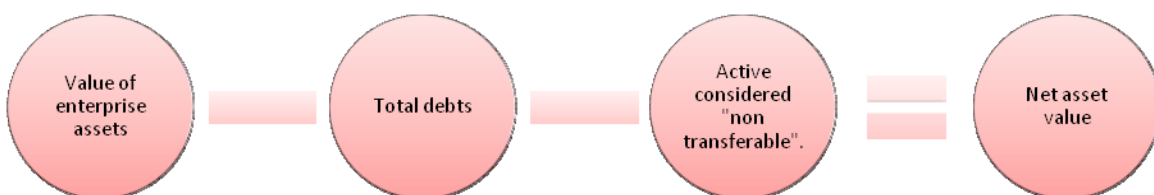


*Source: The authors' own contribution*

The main methods used for Asset assessment are:

- Net asset value (NAV).
- Adjusted net assets (ANS).
- Gross substantial value (GSV).
- Permanent capital necessary operations (PCNO).
- Mathematical value (MV).

Net asset value (NAV) is the easiest and quickest to estimate the value of a firm.



*Source: Own adaptation after Valuation standards ANEVAR 2014.*

### 3. Evaluation of the immediate current assets (Future value of money)

The future value is the amount to which a cash flow or a series of cash flow will rise in a certain period of time by composition with the interest rate (of the profitability of the investment).

The predictions regarding the cash flow are an important instrument for the management of the company, which may prove helpful in the general planning of the company's future.

The future value represents the amount to which a cash flow or a series of cash flow will rise in a certain period of time by composition with the interest rate (of the profitability of the investment).

Temporal axis	Year 0	Year 1	Year 2	Year 3
Initial flow	1.029.091 lei	Fv1	Fv2	Fv3
Interest				
Amount at the end of the period		3,25%	3,41%	3,58%
(1+d)n		103,25%	106,61%	110,07%
Future value (Fv)		1.062.536,46	1.097.113,92	1.132.720,46

Source: Adaptation after Sorin V. Stan, *Assessment of the enterprise*, IROVAL Publishing House, Bucharest, pag. 100-101

#### Situation of the uneven periodical cash flow

The future value of money is represented by the current value of the following cash flow

$$\text{Future value Fv} = \frac{CF1}{(1+d)} + \frac{CF2}{(1+d)^2} + \frac{CF3}{(1+d)^3}$$

$$Fv = \frac{CF1}{(1+d)} + \frac{CF2}{(1+d)^2} + \frac{CF3}{(1+d)^3} = \frac{431019}{1,0325} + \frac{470180}{1,0325^2} + \frac{513256}{1,0325^3} = 417451,81 + 441048,73 + 466341,99 = 1324842,53$$

$$Pv = 1.029.091$$

Temporal axis	Year 0	Year 1	Year 2	Year 3
CF	CF0	CF1	CF2	CF3
Cash flow	150.835 lei	431.019	470180	513256
(1+d)n		103,25%	106,61%	110,07%
CF/(1+d)n		417451,81	441048,73	466341,99
Fv		1.324.842,53		

#### Determining the correction

Determining the correction: Future value (Fv) – Present value (Pv)

$$Fv - Pv = 1.324.843 \text{ lei} - 1.029.091 \text{ lei} = 295.752 \text{ lei}$$

#### Method no. 3 – situation of perpetual even periodical cash flow (perpetuities)

It represents the present value of the updated cash flow to a profitability rate of the market.

$$Fv = Pv + \frac{CF_0}{(1+r)^n}$$

Where:

Fv – Future value

Pv – Present value

CF0 – Cash flow 09.2014

r = profitability rate,  $r = \frac{PN}{CP}$

$$Fv = Pv + \frac{CF_0}{(1+r)^n} = 1.029.091 + \frac{150835}{1,20442} = 1.029.091 + 143.981,48 = 1.173.072,48$$

$$r = \frac{PN}{CP} = \frac{63277}{1329275} = 0,0476$$

### Determining the correction

Determining the correction: Future value (Fv) – Present value (Pv)  
 $Fv - Pv = 1.173.072 \text{ lei} - 1.029.091 \text{ lei} = 143.981 \text{ lei}$

### Method no. 4 – average annual geometrical profitability

Average annual geometrical profitability is determined starting from the formula:

$$Fv = Pv * Ff \text{ (Fructification factor)}$$
$$Fv = Pv * Ff = 1029091 * 1,20443 = 1.239.468,07$$
$$r = \text{profitability rate, } r = \frac{Fv - Pv}{Pv}$$
$$r = \frac{1329277}{1029091} = 0,0476$$
$$Ff = (1 + r)^n = (1 + 0,0476)^3 = 1,20443$$

### Determining the correction

Determining the correction: Future value (Fv) – Present value (Pv)  
 $Fv - Pv = 1.239.468 \text{ lei} - 1.029.091 \text{ lei} = 210.377 \text{ lei}$

### Determining the goodwill elements

#### Method 1 – previously presented (selected)

In accounting, goodwill or over-value represents the difference between the price paid by a buyer of a business and the net asset value of that enterprise. Goodwill allows the determination of profit as a reflection of the welfare of the company, as follows:

$$Gw = Pr - At * Ra / 100$$

where:

Pr – the company's profit

At – total active of the company's balance

Ra – average rate of return on assets

If the result is positive, there is obtained a goodwill, and if the result is negative, there results a badwill.

Year	09.2014
Pr – the company's profit	63.277
At- total active of the company's balance	1.652.870,11
Ra – average rate of return on assets (Pr/At)	3,83%
Goodwill /Badwill	62.644,23

#### Method 2 – the method of superprofit capitalization

Evaluation of goodwill starts from the quantification of the superprofit that a business can generate. This represents the company's ability to generate a higher profit as compared to the sector to which it belongs.

It is assumed that there is no superprofit - and therefore no goodwill - unless the return on capital in the enterprise is greater than that which would be achieved by placing the same capital on the market.

$$S_p = R_C - C_C$$

where:

Sp – superprofit

RCI – return on invested capital - current predicted result

CCI – cost of invested capital – resources brought by the shareholders

$$S_p = RC - i \times R_{CS}$$

Goodwill is determined by discounting an annuity (constant superprofit) on a finite horizon of n years:

$$GW = \sum_{t=1}^n \frac{Sp}{(1+r)^t} = \sum_{t=1}^n \frac{(RC - i \times Res)}{(1+r)^t} = (RC - i \times Res) \frac{1 - (1+r)^{-n}}{r}$$

where:

r= rate of return on the market - return on financial market (the interest rate, which for the 9<sup>th</sup> month of 2014 is 3,25%)

$$GW = (63.277 - 0.0325 \times 300.000) \times (1 - (1 + 0,0325)^{-3}) / 0,0325 = (63277 - 9750) \times (1 - 0,9085) / 0,0325 = 53527 \times 2,8153 = 150.699 \text{ lei}$$

### Method no. 3 – the anglo-saxon method

According to this method, the GW can be determined using the relation:

$$GW = s (PN - a * ANC)$$

and the value of the organization (Vi) results from the equation:

$$Vi = ANC + GW$$

Analyzing the relation  $GW = s (PN - a * ANC)$ , there results that GW is obtained from the difference between the annual average profit (PN) and the ANC value, updated with the interest rate (a), which does not include the risk coefficient, difference amplified with the overall discounting factor (s), where:

$$s = \frac{(1 + a)^n - 1}{a(1 + a)^n}$$

where a is the interest rate, and n represents the number of years of the computing period, considered to be 3-5 years. If the difference is higher than zero, the organization is deemed to have goodwill.

The rate of interest at the National Bank of Romania is 3,25%.

$$s = ((1 + 0,0325)^3 - 1) / (0,0325 * (1 + 0,0325)^3) = 2,81$$

$$GW = s (PN - a * ANC) = 2,81 * (63277 - 0,0325 * 1501689) = 137.389 \text{ lei}$$

## 6. Conclusion

In my opinion, the application of the principle of precaution adds new meanings in the macroeconomic context affected by financial crisis, especially in the banking units currently subject to a high credit risk in case of a severe economic instability and who see themselves forced to devise increasingly complex methodologies for the implementation and application of this principle.

### References

1. Grigorescu Sorin, *Particulars relating to the application of the principles of accounting to banking companies Annales Universitatis Apulensis Series Oeconomica Nr. 8 / 2006, volume 1, Universitatea "1 Decembrie 1918" Alba Iulia, Facultatea de Ştiinţe, 2006, on-line at <http://www.oeconomica.uab.ro/upload/lucrari/820061/13.pdf>*
2. Mihai, Iuliana Oana *POSSIBILITIES OF ANALYSIS AND INTERPRETATION OF CASH FLOW STATEMENT, Proceedings Paper of 16th International Economic Conference - IECS 2009, Book Group Author(s): Lucian Blaga Univ Sibiu, Fac Econ Sci, Industrial Revolutions, from the Globalization and Post-Globalization Perspective, Vol IV: Banking, Accounting and Financial Systems From The 21st Century Perspective, Pages: 425-431, Published 2009, ISBN: 978-973-739-775-1*
3. *The order of the Minister of Public Finance nr. 3.055/2009*
4. *Standarele de Evaluare ANEVAR ed. 2014*
5. <http://www.dexx.ro/index.php?a=term&d=dictionar+financiar-bancar&t=principiul+prudentei>