The actuarial accounting in the modern financial-accounting management with applications to the entities

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ABSTRACT  
The opening of the accounting to the actuarial calculation is a normal consequence of its evolving spirit. At the origin of the international accounting standards lies the framework for preparing, presenting and disclosing the financial statements. The framework stays as a reference matrix, as a standard of standards, as a constitution of financial accounting. According to the international framework, the financial statements use different evaluation bases: the historical cost, the current cost, the realizable (settlement) value, the present value (the present value of cash flows). Choosing the evaluation basis and the capital maintenance concept will eventually determine the accounting evaluation model used in preparing the financial statements of a company.

KEY WORDS  
Actuarial accounting, current costs, fair value accounting, present value, framework, realizable (settlement) value

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1. Introduction

Due to the fact that more and more companies apply the international standards of financial reporting and the evaluation of assets, respectively of debts is made on the basis of the fair value, at present the so-called actuarial accounting is more and more spoken about.

The opening of accounting towards the actuarial calculation is but a natural consequence of its evolving spirit. The capitalist spirit of the 21st century leads us to an actuarial approach of accounting based on future cash flow estimations with an actuarial rate that depends on a series of external factors such as: the economic, financial and monetary policy; the level of inflation and its evolution.

The actuarial accounting seems to be for the time being a subject dealt with more at theoretic level. This aspect represents in fact the transition to a new stage in its evolution in time. After the period in which the accounting used to present only a static position (18th–19th century), then also a dynamic one (20th century) of the financial reports drawn up by a company, now we witness a tendency towards the actualization of the future cash flows.

Reverting to the direct relation between accounting, as science and not only, but also as practical activity, and globalization, as a stage in this evolution, we need to point out that the more and more pressing reference to the international financial reporting standards, to the international rules is but a natural consequence of this evolving spirit.
Nevertheless, it is worth mentioning that this compliance must be achieved by taking into account the economic conditions of the country, and not by applying any standard only for the sake of observing the international rules. Consequently, the adaptation of the specific laws to the European guidelines and the application thereof by the companies, respectively the exchange of experience or the audit of the financial-accounting reports by international companies are a result of this economic globalization process. Thus, all these factors allow a unanimous interpretation of many economic indicators, related to the same value scale, by any user of financial-accounting information in any country.

The latest standards in the field of accounting represented new international challenges with major impact on the national economy.

For the negotiations of the EU extension, the community acquis was divided into 31 chapters, and chapter 5 (Law of Trade Companies) has the greatest importance for the accounting and audit of the private sector. The introduction of accounting on the community acquis list was necessary due to the major importance and impact it has in the standardization and control of the financial relations among the countries of the European Union. We should not forget that the European Union is waiting for us with a great challenge: the transition to the unitary European currency in a few years. Then, taking into account the allocation of European Union funds for the development of the non-competitive sectors of the national economy, the accounting is the only one able to avoid the inefficient use of the funds. Therefore the Order of the Minister of Economy and Finances no. 2374/2007 was issued, concerning the modification and completion of the Order of the Minister of Public Finances no. 1752/2005 for the adoption of the accounting rules in compliance with the European guidelines.

These are applied, without delay, starting with the accounting reports of the financial year 2007.

In case of consolidation of accounts, the size criteria are established on the basis of the yearly financial reports of the holding-company and its subsidiaries. A holding-company is released from drawing up the yearly consolidated financial reports if, on the date of the consolidated balance sheet, the trade companies which are going to be consolidated do not exceed together, based on their latest yearly financial reports, the limits of two thirds from the following 3 criteria:

- Total assets: 17,520,000 euro;
- Net turnover: 35,040,000 euro;
- Average number of 250 employees during the financial year.

On drawing up the yearly consolidated financial reports, the accounting companies may relate either to the Accounting Rules according to the 7th Guideline of the European Economic Community or to the International Financial Reporting Standards.

The permanent residences in Romania belonging to legal bodies with the headquarter abroad, from the point of view of accounting, represent sub-units without juridical personality belonging to those legal bodies. They are obliged to draw up the yearly financial reports and the periodical accounting reports, according to the accounting law in force. The depreciation of the fixed assets with limited working life is performed systematically, by reducing the book value thereof.
2. The bases of actuarial accounting

The application for the first time of the International Financial Reporting Standards as an accounting constitution, as basis of the actuarial accounting of transition to the fair value and of the use of assets and debts implies the observance of some compulsory conditions. The elimination from the balance sheet of all the assets and debts which do not fulfill the acknowledgement conditions of the international reference system (i.e. the International Accounting and Financial Reporting Standards); For example, there have to be acknowledged: the provisions for the liabilities and charges recognized in the balance sheet, according to the national reference system, but which do not correspond to the acknowledgement conditions according to IAS 37 (“Provisions, contingent debts and contingent assets”), intangible assets created by the company, which do not fulfill the acknowledgement criteria provided by IAS 38 (“Intangible assets”).


2. In the balance sheet there are acknowledged assets and debts which have not been acknowledged according to the national accounting reference system, but fulfill the conditions of the international reference system.

For example, the provisions referring to the retirement commitments which have not been acknowledged in the balance sheet but only presented in the explanatory notes, will have to be recorded, i.e. acknowledged according to the old IAS 19 (“Employees’ Earnings”), the assets and liabilities of deferred tax are acknowledged according to IAS 12 (“Income Tax”).

3. The classification of the assets and debts is made according to the international accounting standard IASB.

The financial securities must be classified according to IAS 39 „Financial Instruments: acknowledgement and evaluation”. IAS 10 („Events after the date of the balance sheet”) does not allow the classification of dividends as a debt in the balance sheet. In the IFRS opening balance sheet they will be re-classified as a component of the result carried forward.

4. The evaluation of the assets and debts must be made according to the international accounting reference system.

All the building contracts must be evaluated by taking into account the degree of progress of the work.

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2 Nota bene: Financial instrument

- Expression of generalized value of some economic relations by means of which the efficient distribution and use of the public and private financial resources take place. The financial instruments express elements of the finances such as: profit, dividends, shares, debentures, bill of exchange, promissory note, taxes, charges, budget expenses, insurance premiums, indemnities granted by insurance and reinsurance companies, contributions to social insurance, pensions, benefits, etc. The financial instruments are used by the public authorities to influence the economic processes, to correct the economic cycle, to eliminate the economic and financial imbalance. By means thereof, financial steps can be taken in order to calm down the inflation. During the economic recession, the tax relief and other tax allowances, as well as the budgetary appropriations stimulate the investments and the consumption.

- Payment instrument, cash and cash substitutes, documents, certificates, acknowledgements of debt expressed in a currency or in RON and used in payment operations (settlement of receivables). To the group of these instruments belong: the bill of exchange, the promissory note, the cheque, the letter of credit, the credit cards, the debit cards etc.

- Settlement instrument, the document used in settlement operations without cash. The economic units can use for settlement the following settlement instruments: the payment order, the promissory note, the bill of exchange, the mail order of payment, the mail reimbursement etc. The variety of the settlement instruments is determined by the diversity of the economic relations existing between the economic units and by the complexity of their activity.
All the differences resulting from acknowledgement, non-acknowledgement (i.e. elimination) and adjustment, will affect the own capital, at the evaluation. But the standard provides optional exceptions and compulsory exceptions from the retroactive application.

The optional exceptions try to facilitate the work of drawing up an opening balance sheet and to limit the contestations of the existing one, in some well defined cases.

a) The use of the historical cost by convention. At the time of transition to the IFRS standards, the reconstruction of the depreciated cost of some assets or debts might show some difficulties.

Due to this fact, IFRS 1 accepts the evaluation of these elements in the opening balance sheet on another basis than the historical cost such as:

- The fair value on the date of the opening balance sheet. Nevertheless, an exception from this basis, are the intangible assets for which the fair value can be retained as evaluation basis only to the extent in which they have an active market.

- The value revaluated prior to the date of transition to the IFRS standards.

- The size revaluated at the fair value, as a result of quotation of a company, a privatization or another specific event, prior to the date of transition to the IFRS standards.

b) In case of groups of enterprises, the companies have the possibility not to reconsider the grouping operations previous to the transition to IFRS. If the reconsideration is decided, then all the subsequent grouping operations will be reconsidered.

c) The employees’ advantages: bringing to zero all the actuarial differences. According to the provisions of IFRS 1, the companies will be able to record the actuarial differences entirely, with compensation in the adjustment of their own capital, without losing the possibility, in future, to schedule new actuarial differences. This is an exception from the rule IAS 19 („Employees’ Earnings“) that recommends to schedule in time the actuarial differences and does not allow the change of the method.

d) The net investment in foreign entities: bringing to zero the accumulated conversion differences. IFRS 1 allows the company to consider null the accumulated conversion differences, referring to the net investments in foreign entities, and if the option is used, it must be used for all the foreign entities.

e) The hybrid titles (derivations): non-reclassification of the component „shares“ within the own capital. If on the date of transition to IFRS the debt regarding the hybrid financial instruments is paid up, no division on components (a capital component, a debt component) will take place.

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3 Actuarial:

Acc. to the Romanian Academy, Linguistics Institute “Iorgu Iordan”, English-Romanian Dictionary Publishing House of the Romanian Academy, 1975 – “actuary” – actuar; accountant, calculator (in insurance companies);

Acc. to Grand Dictionnaire HACHETTE, encyclopédie illustre, SPADEM Paris, 1993 - “actuarie, elle” – referring to the calculation of the financial or insurance operations; “actuarial charge” – return charge of a capital whose interests and reimbursement are paid by installments during a period of time;

Acc. to Webster’s Encyclopedic Unabridged Dictionary of the English Language New Revised Edition, Gramercy Books, New York/AVENEL, 1994 – “actuary” – 1. Insurance; a person who computes premium rates, dividends, risks etc., according to probabilities based on statistical records; 2. (Formerly) a registrar or clerk.

The method of actuarial evaluation implies that an entity will use the method of the designed credit factor in order to determine the capitalized value of its obligations regarding the determined profit and the cost of the current service related to them and, implicitly, the cost of the previous services. This method – also known as the method of the profit engaged proportionally for the rendered service or as method profit for the activity year in the respective service – acknowledges that each service period gives birth to an additional profit unit and evaluates each unit separately in order to determine finally the whole payment obligation.
f) **Assets and debt of the subsidiaries of associated companies and partnerships**: if the holding company applies the IFRS prior to the subsidiary, in the consolidated balance sheet the assets and debts of the subsidiary will be evaluated either at values according to IFRS depending on the date of the holding company’s transition to IFRS, or at values established on the basis of IFRS 1 depending on the date of the subsidiary’s transition to IFRS.

The **compulsory exceptions** aim at avoiding the revision of the previous choices or estimations, if these would turn out to be inadequate.

- **Elimination of the financial instruments**: in case the company has eliminated from its balance sheet the financial instruments prior to the transition to IFRS, it cannot acknowledge them in the IFRS opening balance sheet even if the conditions provided by the international reference system are fulfilled.

- **Acknowledgement of the elements of coverage accounting**: at the moment of transition to IFRS no possibility is given to change the manner of qualification of the covering operations (according to the old standard IAS 39 „Financial instruments: acknowledgement and scheduling”) – especially the coverage against risks.

- **Keeping the previous estimations**: in the opening balance sheet the estimations made according to the national reference system will be kept, except for the situation when serious errors regarding the respective estimations are found.

3. The use of the capitalized value in accounting

**The capitalized value** represents an often used concept that has many applications in accounting. At present, IFRS does not offer specific guidance concerning this aspect, but supplies a general framework for the use of the estimations of future cash flows, as basis for the accounting evaluations. These estimations refer to the initial acknowledgement or, when the assets are reevaluated subsequently, to the fair value (evaluations from „zero”). The standards offer also a framework for the use of the interest method. They supply principles governing the evaluations, using the capitalized value, especially when the values of the future cash flows, their moment or both are uncertain. Nevertheless, the standard does not deal with some problems regarding the acknowledgement, for example what transactions and events must be evaluated by using the capitalized value and when the evaluations from zero are adequate.

The fair value represents the goal of the majority of evaluations at the initial acknowledgement and for evaluations from zero, in the subsequent periods of time. At the initial acknowledgement, the cash paid or received (the historical cost or the collections) is usually foreseen to be the fair value, since there is no evidence to prove the contrary. For the evaluations from zero, a price which is used on the market for a similar asset or debt represents the fair value. If the purchase prices and the market prices are available, the use of evaluation techniques to approximate the fair value is not necessary. Nevertheless, if alternative evaluation techniques must be used for the initial acknowledgement and the evaluations from zero, these techniques must try to bring together the elements which, taken together into account, would help to establish a market price, if this existed.

The IFRS standards stipulate that the sole aim of using the capitalized value in the accounting evaluations is the fair value. It is necessary to take into account; if possible, the economic differences existing on the market in case of the future estimated sets of cash flow. An evaluation...
at the capitalized value, which should take fully into account these differences, must observe the following elements:

1. An estimation of the future cash flow or, in complex situations, of the series of cash flows, at different moments in time;
2. Predictions regarding the possible variations of the value or of the moment of those cash flows;
3. The value of money in time, represented by the interest rate without risk;
4. The risk premium – the price for the degree of uncertainty inherent to an asset or a debt;
5. Other factors, including the market liquidity and imperfections.

The previously used techniques of the capitalized value employed, usually, a single set of estimated cash flows and a single (interest) capitalization rate, using the estimations of cash flow which had the greatest chance to occur. The method of the capitalized value refines and increases the accuracy of this model by taking into account several scenarios in which cash flows appear (regarding the values and the moment when the cash flows occur) by their estimated probability of occurrence and by using those scenarios in the final determination of the fair value. The difference is that the values are distributed to other cash flows than those which are most probable to occur.

3.1. The evaluation of the debts

The evaluation of the debts implies several problems of the asset evaluation; nevertheless, the main purpose is the same. When techniques of the capitalized value are used to estimate the fair value of a debt, the purpose is to estimate the asset value necessary at present in order to (1) settle a debt with the shareholder or (2) transfer the debt to an entity with a similar credit position. In order to estimate the fair value of the titles or debentures to be paid by an entity, the accountants analyze the price for which other entities would be ready to hold as assets the entity’s debts. For example, the collections of a loan represent the price paid by the creditor in order to hold as asset the borrower’s promising pertinent to the future cash flows.

The most relevant evaluation of an entity’s debts must always reflect the entity’s banking stability. An entity with a good banking stability will get more cash for its promising to pay than an entity with a lower credibility.

3.2. The allocation by the interest method

It is stipulated that the allocation by the interest method is more relevant than other cost allocation methods, when it is applied to the assets and debts that have one or several of the following characteristic features:

1. The transaction is, as a matter of fact, a transaction of borrowing and lending;
2. The allocation from period to period of the similar assets or debts implies an interest method;
3. A special set of estimated future cash flows is closely connected with the asset or the debt;
4. The evaluation at initial acknowledgement was based on the capitalized value.
4. Accounting the changes of the estimated cash flows

If the estimated moment and value of the cash flows change, and the asset or debt is not revaluated by an evaluation from zero, an actualization method must be added to the method of allocation by the interest method. This method adjusts the book value according to the capitalized value of the future revised cash flows, actualized at the initial effective interest rate.

4.1. The application of the tables and formulas of the capitalized value

The capitalized value of a future single amount. In order to determine the capitalized value of a single amount that will be paid in future, the formula of the capitalized value shall be applied (CV is the capitalized value of 1 euro, paid in future, r is the interest rate for the period, and n is the number in periods between the current date and the future date when the amount will be realized):

\[
CV = \frac{1}{(1+r)^n}
\]  

(1)

In some cases, the results of this formula are recorded in a table with the factors of the capitalized value:

<table>
<thead>
<tr>
<th>Periods (n)</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
<th>9%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.9804</td>
<td>0.9709</td>
<td>0.9615</td>
<td>0.9524</td>
<td>0.9434</td>
<td>0.9346</td>
<td>0.9259</td>
<td>0.9174</td>
<td>0.9091</td>
</tr>
<tr>
<td>2</td>
<td>0.9612</td>
<td>0.9126</td>
<td>0.9246</td>
<td>0.9070</td>
<td>0.8900</td>
<td>0.8734</td>
<td>0.8573</td>
<td>0.8417</td>
<td>0.8265</td>
</tr>
<tr>
<td>3</td>
<td>0.9433</td>
<td>0.9151</td>
<td>0.8980</td>
<td>0.8638</td>
<td>0.8396</td>
<td>0.8163</td>
<td>0.7938</td>
<td>0.7722</td>
<td>0.7513</td>
</tr>
<tr>
<td>4</td>
<td>0.9239</td>
<td>0.8885</td>
<td>0.8548</td>
<td>0.8227</td>
<td>0.7912</td>
<td>0.7629</td>
<td>0.7350</td>
<td>0.7084</td>
<td>0.6890</td>
</tr>
<tr>
<td>5</td>
<td>0.9257</td>
<td>0.8626</td>
<td>0.8219</td>
<td>0.7835</td>
<td>0.7743</td>
<td>0.7130</td>
<td>0.6806</td>
<td>0.6499</td>
<td>0.6209</td>
</tr>
</tbody>
</table>

Supposing that somebody wants to determine how much it is necessary to invest today in order to have 10,000 euro in 5 years, if the invested amount would bring 8%. If we look at the crossing of the row with \( n = 5 \) and of column \( r = 8\% \), the factor of the capitalized value will be 0.6806. If we multiply 10,000 euro by 0.6806 the result is the amount of 6,806 euro, the value that should be invested today in order to have 10,000 euro at the end of those 5 years. Alternatively, using a computer and applying the capitalized value of a single addition formula, we can multiply 10,000 euro \( \frac{1}{(1+.08)^5} \), what would lead to the same result – 6,806 euro.

4.2. The capitalized value of a series of equal payments (an annuity)

Often, in business situations, a series of equal payments made at equal time intervals is necessary. Examples of this kind are the payments of the interests for the half-year debentures and payments of the principal or of the leasing. The capitalized value of each of these payments may be added in order to determine the capitalized value of this annuity or, alternatively, a much simpler method is available. The formula for computing the capitalized value of an annuity for the payments of 1 euro, during some periodic payments \( n \), at a periodic interest rate \( r \) is:

\[
PV\ \text{annuity} = \frac{1}{(1+r)^n}
\]  

(2)
5. Practical aspects

The actuarial accounting is based on capitalized values or on utility values. In the international accounting such values appear in the context of asset depreciation. The depreciation of an asset occurs when the recoverable value thereof is lower than its book value. The utility value appears as a capitalized value obtained by the estimation of the expected future cash flows, from the continuous use of an asset and from the assignment thereof at the end of its utilization time. The estimation of the utility value of an asset includes the following stages: the estimation of future cash entries and output generated by the continuous use of the asset and of its final output; the application of the suitable actualization rate to these future cash flows.

5.1. Application regarding the use of the historical costs and the use of the provision account for closing down the tangible fixed assets (account in liquidation):

An entity purchases an installation for a period of 8 years in the following conditions: negotiated price 360,000 m.u.; cost of transportation and setting up invoiced by the supplier 60,000 m.u. By contract (license) the entity is obliged to close down the installation at the end of the operation period and restore the vegetation. The estimated expenses for the closing down and restoration of the vegetation: 30,000 m.u. The actualization rate: 10%.

The purchase value = 360,000 + 60,000 = 420,000 m.u.

a) The taking over of the installation is recorded.

\[ \text{Installations} = \text{Suppliers of fixed assets} \quad 420,000 \text{ m.u.} \]

b) Recording of the estimated cost for closing down and restoration of the vegetation

\[ [30,000 \times (1 + 10\%)^8 = 13,995 \text{ m.u.}] \]

\[ \text{Installations} = \text{Provision for closing down} \quad 13,995 \text{ m.u.} \]

of fixed assets and similar actions

c) The initial cost of the installation is 420,000 + 13,995 = 433,995 m.u.

5.2. Application regarding the use of the fair value and the acknowledgement of the variation of the fair value in the actuarial accounting:

An entity has constructed a building whose cost is of 25,000 m.u. The building has been commissioned on the 1st June year N. On the 31st December N the building is evaluated to the estimated fair value of 25,300 m.u. On the commissioning date the building was depreciated for 500 m.u. On the 31st December N +1 the fair value of the asset is 26,000 m.u. On the 31st December the following are recorded in the book:

a) The annulations of the accumulated depreciation by affecting the entry value of the placement immovable

\[ \text{Depreciation of placement immovable} = \text{Placement immovable} \quad 500 \text{ m.u.} \]

b) The acknowledgement of the difference between the fair value of the placement immovable and its book value \([25,300 - (25,000 - 500)]\):
Placement immovable = Income from placement immovable

800 m.u.

c) On the 31St December N +1 the variation of the fair value is acknowledged (26,000 – 25,300):

Placement immovable = Income from placement immovable

700 m.u.

6. Conclusions

By the end of the year 2000 the terms of “accounting in market value” or “accounting in fair value” and recently, the term of “actuarial accounting” appeared.

The accurate image is the main defender of the accounting in the European countries. Its obtaining confers utility to the information supplied by accounting in the process of substantiation of the decisions by various users, and especially by financiers (investors, shareholders, associates) called – with good reason, by the international board for adopting the international standards, - ”privileged users” of the information of the yearly financial reports.

Like any accounting evaluation, the application of an approach to the foreseen cash flows forms the object of a limitation cost-profit. The cost for obtaining additional information should be analyzed on the basis of additional credibility because the information will be useful for the evaluation. As a practical aspect, an entity which uses evaluations at the capitalized value has, in most of the cases, little information or no information at all regarding a part of or all the hypostases which investors would use for the evaluation of the fair value of an asset or debt. On the other hand, the entity must use the information available without useless costs and efforts, when it draws up estimations of the cash flows.

The entity’s estimations regarding the future cash flows can be used to compute the fair value employing the technique of the present value, as long as there are no contrary data indicating that the investors use other estimations.

Nevertheless, if there are contrary data, the entity must adjust its estimations so that they should take into account the market information.

The elements of the balance sheet which are the most sensitive to the evaluation at the fair value are the financial instruments. Under the circumstances of an active market, the fair value is in fact the market price (market to market).

In the heritage of accounting there appeared, are appearing and will appear specific terms characteristic for the evaluations of the actualization rates, but also a specific language. For example: deprival value, value to the business, recoverable value, relief value and all of them revolting round the fair utility values.

References


