DEFINITIONS AND GROUNDINGS REGARDING DEPRECIATION ACCORDING TO THE USEFUL LIFE

Boni Mihaela STRĂOANU
PETROLEUM – GAS UNIVERSITY OF PLOIEŞTI

Abstract:
The depreciable size of a depreciable asset must be systematically distributed, by each exercise, during the useful life of the asset.
Sometimes it is considered that, when the value of an asset se exceeds the size it is recorded at in the financial declarations, such asset does not have to be depreciated. However, the norm underlines that the size of the depreciation expenses must be accounted during each exercise, based on the depreciable value, independent of the increase of asset's value. This article presents several considerations regarding depreciation of fixed assets according to the normal useful life.

Key words: depreciation, normal useful life, depreciation rate, depreciation of the fixed asset

JEL classification: M41

The useful life of a fixed asset is determined in years of use and varies according to the nature of the goods, and this can be: normal life, consumed life and residual life.

The normal useful lives (NUL) of the fixed assets are established in centralized way by government decision, being periodically revised, but not later than five years. Such normal useful lives are established based on technical and economic determinations by categories of fixed assets. This is a guarantee that all economic agents operate the same category of fixed assets with similar useful life.

The normal useful lives coincide with the depreciation periods in years related to the linear depreciation rate, being estimated according to the experience supplied by practice with regard to comparable immobilization categories. At present, the normal useful lives are established according to Government Decision no. 2139/2004 regarding approval of the classification and normal useful life of fixed assets.

The consumed useful (CUL) represents the period in years from commissioning up to the given time.

The residual useful life or residual normal useful live (RUL) represents the period in years in which the said fixed asset can operate until it is removed from service, considering its wear and tear.

Adding the consumed useful live with the residual useful life, there results the estimated useful life (EL) according to which the physical wear degree is determined in percentages by the relation:

$$U = \frac{DSC}{DE} * 100$$

In our country, the patrimonial units carrying out economic activities depreciate the fixed assets using one of the following depreciation rates: linear depreciation, degressive depreciation and accelerated depreciation.

Linear (constant) depreciation is based on the theory of depreciation or utilization distributed regularly in time and consists in the uniform calculation and allotment of the input accounting value of the fixed assets throughout the normal useful life expressed in years.

The own depreciation calculation relations of this method are:

1. Annual depreciation (Depreciation annuity) = Input accounting value * Annual depreciation rate (Average annual depreciation quota or norm)

2. Annual depreciation rate = $\frac{100}{\text{Normal useful life}}$

For the fixed assets of the construction nature, annual depreciation will only be calculated in linear regime.

The use of the linear regime is approved by the board of directors of the economic agent, the person responsible with patrimony administration, respectively, on the commissioning date.

A problem of depreciation calculation is that where, during the year, there occur inputs and outputs of immobilized assets. Thus, he annual depreciation rate must be calculated according to the actual duration of use, which is less than 12 months or 360 days. In the specialized literature this problem is named **depreciation prorata temporis**.

Prorata can be calculated in days, months and semester of use.

When *month* is taken into consideration, on input is taken into calculation the month following the input one, irrespective of the day the operation occurs, and on output there is excluded the month following the output one. When *semester* is taken into consideration, for inputs there is taken into calculation 1/2 of the input year depreciation annuity, and in the case of outputs there is excluded 1/2 of the output year annuity regarding the fixed asset in question.

Where the Romanian accounting model is concerned, without the depreciation prorata being formalized expressly, the way in which it can be construed can be derived from Order no. 16805/30.12.1994 of the Ministry of Finance and the National Statistics Commission. According to this order, the average annual value of the entered (Vmai) or exited (Vmae) fixed assets is determined based on the relation:

$$\text{Vmai sau Vmae} = \frac{\text{Vi(e)} * \text{T}}{12}$$

where:

- Vi(e) – input accounting value of the entered fixed assets (Vi) or the accounting value of the exited fixed assets (Ve);
- T – number of full months, from the month following the month of entrance of the fixed assets until the end of the year, number of full months from the month following the month of exiting of the fixed assets until the end of the year, respectively.

Further to the above clarifications, depreciation prorata is calculated according to the month following the entry or exit month.

Compared with the above interpretation, there can be derived a second one starting from the clarifications made in the application norms of Law no. 15-1994 with regard to documents of reception of commissioned fixed assets. The clarifications made in this respect are: “as of acquisition date”, “as of end of construction date”, etc. Consequently, depreciation prorata is calculated according to the number of days of use during the year.

The problem of the way of calculation of the depreciation prorata remains open, but is has effects on the size of depreciation and, implicitly, on the taxation of the profit. In the circumstances whereby a company can slide in favor of one or the other of the alternatives, taxation must be adopted accordingly.

The linear depreciation method is easy to use, but its simplifying aspect exposes it to certain criticisms. The decrease in the value of goods is not constant throughout their life. This method considers neither the decrease of the production capacity, nor the increase in time of the maintenance costs due to wear and tear.

Degressive depreciation has the effect of registering as expense a larger depreciation during the first exercises of use of the fixed asset, as compared to the depreciation calculated for the ulterior exercises. The economic justification of this method is given, on the one hand, by the fact that the depreciation for certain fixed assets is greater during the first exercises and, on the other hand, by the determination that they have a greater production capacity during the first years of life, after which they require ever greater expenses.

Degressive depreciation can be calculated:

- either applying a degressive quota to a constant value;
- or, especially, applying a constant quota to a degressive (decreasing) value.

By the employment of the second method (a quasi-generalized case), the depreciation basis is the net accounting value (VNC). According to this alterative, the depreciation table looks like this (according to Niculae Feleagă, Ion Ionaşcu – Financial Accounting Treaty, volume II, Economic Publishing House, 1998):

Year	Depreciation basis (VNC)	Annuity	Aggregate depreciation	Net accounting value (VNC)
1	V	V*t	V*t	V – V*t = V*(1-t)
2	V*(1-t)	V*t*(1-t)	V*t + V*t*(1-t)	V*(1-t) – V*t*(1-t) = V*(1-t)^2
…	…	…	…	…
n	V*(1-t)$^{n-1}$	V*t*(1-t)^n	$V * t * \sum_{i=0}^{n-1}(1 - t)$	V*(1-t)^n

The above calculation relations can be applied when it would be wished that the goods are “entirely” depreciated the degressive way. However, employing this method, entire depreciation is practically impossible, since aggregation of depreciations will never be equal with the input value of the goods (or the accounting value V), and the net accounting value (VNC) will never be null.

However the method constitutes as basis for fiscal degressive depreciation. This is used in many countries of continental Europe. Fiscal degressive depreciation aims at inciting the companies to modernize the productive apparatus. It is also to be remarked that in developed countries, degressive depreciation is an alternative of accelerated depreciation,

In our country, degressive depreciation consists of multiplying the linear annual rate by one of the following coefficients:

a) 1.5, when the normal useful live of the fixed asset is between 2 and 5 years;
b) 2.0, when the normal useful live of the fixed asset is between 5 and 10 years;
c) 2.5, when the normal useful live of the fixed asset is greater than 10 years.

Opposable to this depreciation method is the prorata calculated according to the number of months of use/out of use.

Use of the degressive depreciation regime is approved by the board of directors of the economic agent, the person responsible with patrimony administration, respectively.

The degressive depreciation regime is applied in two alternatives:

1. without the influence of moral wear and tear (AD1), for fixed assets commissioned before December 31, 1993;
2. with the influence of moral wear and tear (AD2), for fixed assets commissioned after December 31, 1993.

To calculate depreciation using the degressive depreciation regime, alternative AD1, the procedure is as follows:

- in the first year of operation there is applied to the input value (Vi) the annual degressive depreciation rate (Ra), obtained multiplying the annual linear depreciation rate (Ra) by a multiplication coefficient (K), which can be 1.5; 2.0 or 2.5:

$$Ra = Ra * K$$

$$\text{Annual degressive depreciation} = Ra * Vi$$

- in the following years there is applied the same annual rate, but each time at the residual value. This calculation continues until the year of operation when the resulting annual depreciation is equal to, or smaller than the annual linear depreciation, calculated for the residual operation period. From that year up to the expiration of the normal useful life, annual linear depreciation is applied.

Degressive depreciation, alternative AD2, contains the influence of moral wear and tear which is active on fixed assets and reflects in the calculation of annual depreciation.

Alternative AD2 allows depreciation of the input value of fixed assets in a period of time lower than the normal useful life, the difference in years influencing the moral wear and tear.

In the case of fixed assets with a normal useful life up to five years, degressive depreciation regime, alternative AD2, does not apply. In such cases depreciation will be calculated using the formulas of alternative AD1.

To calculate depreciation in alternative AD2, the following formulas are used:

1) Average annual degressive depreciation rate (Ra):

$$Ra = Ra * K$$

where:

- Ra – annual linear depreciation rate;
- K – multiplication coefficient of the annual linear depreciation rate (1.5; 2.0; 2.5).

2) Duration of use related to the linear regime re-calculated (DUR) according to the annual average degressive depreciation rate:

$$DUR = \frac{100}{Ra}$$

3) Duration of use within which integral depreciation (DUI) is achieved:

$$DUI = DNU - DUR$$

4) Duration of use in degressive depreciation(DUD) regime:

$$DUD = DUI - DUR$$

5) Duration of use for depreciation in linear regime (DUL):

$$DUL = DUI - DUD$$

Accelerated depreciation consists in including in the first year of exploitation, in the exploitation expenses, of depreciation up to 50% din of the input value of the said fixed asset.

The residual value after the first year of use is recuperated by inclusion in the exploitation expenses in linear regime, according to the residual use life.

Use of the accelerated depreciation regime is approved by the territorial organism of the Ministry of Finance, upon proposal of the board of directors of the economic agent or the, based on grounding documentation.

The grounding documentation must contain the data in the table shown below, based on which there is established the number of points required to issue the approval of use of accelerated depreciation regime.

APPENDIX-TABLE

to Methodological Norms of Application of Law no. 15/1994 with regard to the deprecation of capital immobilized in corporal and non-corporal fixed assets, modified and supplemented by Government Ordinance no. 54/1997

#	Specification	Results	Points		Allowed deprec. level (%)
			Without accelerated depreciation	With accelerated depreciation	
0	1	2	3	4	5
A. Presentation Data					
1.	Exploitation income – total				*
2.	Turnover				*
3.	Own capital				*
4.	Permanent capital				*
5.	Fixed assets (corporal assets)				*
6.	Circulating assets				*
7.	Exploitation expenses – total				*
8.	Turnover-related exploitation expenses, of which: • w/out accelerated depreciation • with accelerated depreciation				
9.	Gross profit • w/out accelerated depreciation • with accelerated depreciation				
10.	Net profit • w/out accelerated depreciation • with accelerated depreciation				
B. Economic Efficiency Indicators					
11.	Rate of own capital / fixed assets = Own capital / Fixed assets * 100		10	10	-
12.	Rate of perm. capital / fixed assets = Perm. capital / Fixed assets * 100		5	5	-
13.	Fixed assets immob. rate = Fixed assets / Total assets * 100		5	5	-

14.	Fixed assets rate, of which: • w/out accelerated depreciation: Gross profit * 100 / Fixed assets • with accelerated depreciation: Gross profit * 100 / Fixed assets	20 -	- 10	- 50
15.	Asset rotation = Turnover / Circ. assets * 100	24	24	-
C. Financial Efficiency Indicators				
16.	Profitability rate, of which: • w/out acceler. depreciation: Net profit * 100 / Own capital • with acceler. depreciation: Net profit * 100 / Own capital	16 -	- 8	- 50
17.	Income profitability rate, of which: • w/out acceler. depreciation: Gross profit * 100 / Turnover • with acceler. depreciation: Gross profit * 100 / Turnover	10 -	- 5	- 20
18.	Resources profitability rate, of which: • w/out acceler. depreciation: Gross profit * 100 / Turnover-related exploitation expenses • with acceler. depreciation: Gross profit * 100 / Turnover-related exploitation expenses	10 -	- 5	- 50
	Total points	**100**	**72**	**28**

To calculate the efficiency indicators in order to establish the required number of points, the data related to the commissioning year of the fixed assets will be used as follows:

- Data from the income and expenses budget, when approval is requested during the first quarter of the year;
- Data from the accounting for the closed period, which will be extrapolated at year level, according to the monthly average of depreciation.

The grounding documentation is submitted to the territorial organism of the Ministry of Finance before the commissioning of the fixed assets within maximum one month from the commissioning thereof.

REFERENCES:

1. Accounting Law no. 82/1991, republished, with ulterior modifications and supplements
2. CECCAR, 2007, Financial Reporting International Standards, Bucharest, CECCAR Publishing House
3. Feleaga N., Malciu L. – Accounting Policies and Options – Fair accounting versus bad accounting, Economic Publishing House, Bucharest, 2002
4. Government Decision no. 44/2004 for the approval of the Methodological Norms of Application of Law no. 571/2003 on the Fiscal Code, with ulterior modifications and supplements;
5. Iov R.D., Straoanu B.M., Tatu M. – Accounting, Economic Publishing House, Bucharest, 2006

6. Law no.31/1990 on commercial companies, republished, with ulterior modifications and supplements;
7. Law no. 571/2003 on Fiscal Code, with ulterior modifications and supplements;
8. Order of the minister of public finances no. 1752/2005, for the approval of the accounting regulations conform with the European Directives, published in the Official Monitor of Romania no. 1080 bis, of November 30, 2005;
9. Ristea M., Dumitru C.G. – Closely Examined Accounting, University Publishing House, Bucharest, 2003