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THE COST MANAGEMENT BY APPLYING THE STANDARD COSTING METHOD IN THE FURNITURE INDUSTRY

Case study

Keywords
Managerial accounting
Management process
The standard costing method
The furniture industry

JEL Classification
D22, L52, M41

Abstract

Among the modern calculation methods used in managerial accounting, with a large applicability in the industrial production field, we can find the standard costing method. This managerial approach of cost calculation has a real value in the managerial accounting field, due to its usefulness in forecasting production costs, helping the managers in the decision making process. The standard costing method in managerial accounting is part of modern managerial accounting methods, used in many enterprises with production activity.

As research objectives for this paper, we propose studying the possibility of implementing this modern method of cost calculation in a company from the Romanian furniture industry, using real financial data. In order to achieve this aim, we used some specialized literature in the field of managerial accounting, showing the strengths and weaknesses of this method. The case study demonstrates that the standard costing modern method of cost calculation has full applicability in our case, and in conclusion it has a real value in the cost management process for enterprises in the Romanian furniture industry.

1. INTRODUCTION

In the financial literature and legislation, we can find a lot of information regarding two basic concepts in domain, named ***financial accounting and managerial accounting***. These two aspects of an integrated view in the accounting field are assumed in Romania by the Accounting Law no. 82/1991, republished and added. Also, both of these accounting fields are required in practice for the Romanian firms, item pointed in Accounting Law, no. 82/1991(Accounting Law, no. 82/1991, art. 1, align. 1.).

The Standard Costing Method has some real advantages in practice, fact that seems to be highly important in the management of enterprises. With significant contribution in the decision-making process, the method offers the framework for an empirical management of costs, based on an own special methodology, presented and discussed in the paper.

Even if in real cases, in most of the situations, only the financial accounting is practiced, the benefits of using managerial accounting in firm management are numerous. In our example, presented in the case study, it will be demonstrated that a managerial accounting method as the Standard Costing Method, can be applied with a great success both in big enterprises as in the environment of small enterprises.

The continuous concern for reducing costs in a crisis economy appears like a mandatory long term strategy, which appears to be deeper and deeper in contemporary society. This paper opens a research line on the cost management in the furniture industry, and proposes a concrete approach for the mentioned objective.

2. RESEARCH METHODOLOGY

For this article specialized literature has been consulted, based on the accounting sciences field, and in particular based on the managerial accounting domain. The analysis in the case study was made based on real data. Also, an analysis of standard costing method has been used, with its characteristics. The method will be explained on every necessary step on implementing it, from the financial accounting to the managerial accounting. In our case, we chose one product made in the furniture firm, named „The Boston chair". Focusing our analysis on the financial data from the furniture firm, we calculated the necessary indicators requested by the Standard Costing Method in „standard costing unique" form.

The Standard Costing Method is one of the forecasting calculation methods, in the managerial accounting field. The essence of this method of cost calculation is that it allows the manager to calculate the costs on product with anticipation, based on the historical financial information. In this way, the method allows the manager to estimate in real time, during the production process, the cost deviations. According to this method, the standard cost on product must be calculated in advance, using predetermined quantities for this purpose. Simultaneously with the production process, the operative monitoring of the actual expenditure is organized, with the purpose of having a comparative view on the pre-calculated costs and on the effective costs. The method of cost calculation assumes to calculate costs on ***three calculation articles: materials, manual labour and overhead costs*** (Cleopatra Şendroiu, Aureliana Geta Roman, Costantin Roman, pp. 84-88; Briciu S. et. al., 2010, pp. 329).

Taking into consideration that the main function of the standard costing method is to standardize, being a measurement etalon for comparing and controlling the production expenses, using the standard costing method involves some techniques (Briciu S., 2011, pp. 81-82):

- Comparing the expenses and establishing the deviations on each sector, and calculation by articles and causes;
- Deviation analysis on its dimensions and its causes;
- Establishing the measures for correcting and elimination of the negative deviations and integrating the costs in the calculated standard.

The steps for implementing the standard costing method are mentioned ***in the three main steps named and explained as follows, by professor Briciu S. et. Al*** (2010, pp. 303-306):

Step 1. Determining the standard expenses with the raw materials

At this stage of the production process, it is necessary to calculate the standard costs

with the materials used. This issue involves calculating the indicators from the formula:

$$CHS_{MAT} = Q_s \times P_s \quad (1)$$

where:

CHS_{MAT} = *standard expenses with materials;*

Q_s = *standard quantity;*

P_s = *standard price;*

The standard Consumption (Qs) is determined by the quantity, the quality of materials used, their type, size, and the options took for processing. Also, the standard price (Ps) can be estimated through a few methods: the trend variation, taking into consideration the future development opportunities for materials processing, price variation of the previous period considered and an average price over a reference period;

Step 2. Determination of standard labor costs, that are based on the manufacturing standards and on the standard wage rates. The indicator is calculated by the formula:

$$SLC = T_S \times t_s \quad (2)$$

Where: SLC = Standard labour costs;

T_S = *standard time of working, expressed in hours;*

t_s = *Standard wages, expressed in RON per hour.*

The standard time of working is determined according to the standard times offered by technicians in domain, or they are calculated by timing.

The standard wages are calculated taking into consideration the qualification of every employee, the work conditions, the paid wages in an anterior period, etc.

Step 3. Estimating the overhead budgeting costs

For this last step, it is necessary to make an evaluation on specific criteria about the indirect costs that appear in the production process. Here special criteria are followed, in items like the cost of production, the volume of production, etc. In practice, more methods for evaluating the overhead costs are used.

After calculating the standard costs and after elaborating the budgeting costs on product and after that on overall, deviations from the pre-calculated costs to effective costs can be calculated. In this way, the manager has a full view on the production process, even if the standard costing method has also some weaknesses, not only strengths. As it will result from the case study, the method is appropriate for a firm in the furniture industry, and extrapolating it can be applied to other firms with production activity.

3. LITERATURE REVIEW

After Charles Horngren, Srikant Datar and George Foster (2006), between these two kinds of accounting known in practice, the financial accounting and the managerial accounting, there are some important differences regarding their fond and form. **The financial accounting** focuses especially on reporting measures to the outside framework and records economic transactions providing financial statements, and they are prepared according to the generally accepted principles in two typologies, namely IFRS and GAAP. These reporting systems are different, being specific for two financial systems: the French accounting system and the Anglo-Saxon accounting system (Charles Horngren, Srikant Datar, George Foster, 2006, p. 3). On the other side, the **managerial accounting** focuses on reporting to the inside frame of the enterprise, especially producing information that is very useful for managers. In order to administrate the managerial decisions, in the complex activity of monitoring the production, a base for the decisional process is the data extracted from the internal managerial accounting.

The same authors, Charles Horngren et. al. (2006), define a new category of accounting, positioned between the two mentioned categories until now, and named the **cost accounting**. This new category offers information that is useful for financial accounting and for managerial accounting, information about the cost acquisition or how the resources are used in the enterprise (*Ibidem*).

The author Briciu (2011), about the managerial accounting, points its functions as follows (Briciu, 2011, pp. 7-8):

1. **The forward looking function**, preset level and the structure of production cost, for each product and for the production in ensemble. Also it has items like pre-calculated costs, normative costs, and standard costs in its terminology;
2. **The current analytical current function**, of the production costs, on management periods, and calculation of the

indicators required by the methods used at a time. This supposes recording the costs on sectors of expenditure, based on the supporting documents;

3. **The control function and comparative analysis of the level and structure of production and the costs calculated on their base**: Achieving this function is related by the first and the second function named at point one and two above. It serves for production, with the condition that both control and analysis functions should be exercised operatively, because post operative informing leads to decisions delayed, inefficient;

4. **The information function** - it refers to the data and information necessary for decision makers, such as the cost of production for the whole business, the cost of each product, etc. The level and dynamics of analysis enable managers to know how they should use human and material resources with efficiency. On this basis, conclusions can be drawn about the entire business, including those relating to the financial results.

After the author Florin Sgardea, the information that can be obtained from the managerial accounting, is useful for stakeholders, providing information as follows (Florin Sgardea, *Accounting Management Control Applications and Case Studies*):

- Information on the cost of goods, works, services for legal entities engaged in manufacturing services, as well as the cost of goods sold to legal persons who carry out trade activity;
- Information which is basis for the budgeting and control process, for the operating activities;
- The necessary information for financial analysis, to fundament management decisions on the internal activity;
- Other information required to achieve an efficient management.

According to Felicia Sabou in the paper entitled *The Standard Costing Method, the Direct Costing Method, Modern Methods of the Management Accounting*, the standard costing methodology has been characterized by establishing the standard costs per unit, based on some fundamental costs and integration of the cost calculation in the company planning system, creating the conditions for an effective cost control.

Regarding the advantages of the method, professor Briciu et. al.(2010) underlines the advantages and disadvantages of the standard costing method. The authors say that the method brings the advantage that the *system of cost calculation is substantially simplified*, as a result of abandoning the post-calculation per unit method and of the trend of integrating the cost calculation on the overall planning system entity. In addition, a big disadvantage of the method is that the *standard costing method fails to ensure an effective control on total costs*. For the control function, the method has a significant disadvantage between the other modern methods of cost calculation in the managerial accounting (Briciu Sorin et. all, 2010, pp. 302-303).

4. CASE STUDY

In order to implement the standard costing method in an enterprise from the furniture industry, as the standard costing method unique requires, we calculated the costs on data extracted from the financial accounting of the firm. As we mentioned in the research methodology, we followed the three calculation articles of costs: materials, manual labor and overhead costs.

In the enterprise analysis, the best sold article in the reference period was the „Boston chair", being produced in 2100 pieces between January 2011 and May 2012, according to the stock records. As raw materials used in the production of this chair we have two kinds of timber, beech and conifers, and as auxiliary materials, the firm uses varnish and solvent.

As historical, financial and managerial information for the product, we have centralized the costs in Table no. 1.

Table 1. The historical, financial and managerial information

Indicators	*Fabrication period*						
	2011					*2012*	
	Jan.	**Feb.**	**Aug.**	**Oct.**	**Now.**	**Feb.**	**May.**
1.Units produced	**300**	**500**	**300**	**200**	**200**	**300**	**300**
2. Hours of activity	**550**	**916,6**	**550**	**366**	**366**	**550**	**550**
3. Fixed expenses:	**1200**	**1200**	**1200**	**1200**	**1200**	**1200**	**1200**
Office depreciations	*20*	*20*	*20*	*20*	*20*	*20*	*20*
Management wages and insurances	*1000*	*1000*	*1000*	*1000*	*1000*	*1000*	*1000*
4. Variable expenses	**705**	**2574**	**1516,97**	**1228,37**	**2322,3**	**2421,3**	**2813,46**
Electricity expenses	*705*	*2574*	*1516,97*	*1228,37*	*2322,3*	*2421,3*	*2813,46*
5. Semi-variable expenses	**42**	**70**	**55**	**41**	**40**	**48**	**40**
Auxiliary employee wages	*42*	*70*	*55*	*41*	*40*	*48*	*40*

Source: Author's projection.

The enterprise, for producing the „Boston chair", has the following consumption norms:

Table no.2. Raw materials and direct materials consumption on product

Materials	**M.U.**	**Consumption/product**	**Purchasing price, RON**
1	2	3	4
Beech timber	Mc	0,020	638,36
Coniferous timber	Mc	0,006	531,81
Varnish	L	0,200	10,28
Solvent	L	0,100	6,6

Source: Author's projection.

Table no.3. Operations regarding the manual labour

Type of operation	**Time/product**	**Standard tariff**
Gross Processing	1h 00'	7 RON
Finishing	0h 40'	5 RON
Packing and handling	0h 10'	3 RON
TOTAL	1h 50'	15 RON

Source: Author's projection.

a.
he calculation of standard costs of raw materials and direct materials

In order to calculate the standard costs, using the standard costing unique m**T**thod, focusing on the historical presented information, we summarize the data calculated in Table 4.

Table no.4. Standard expenses on raw materials and other materials

Expenses with:	M.U.	Standard Consumption	Standard purchasing price	Value -RON-
1	2	3	4	3 x 4
Beech timber	Mc	0,020	638,36	12,76
Coniferous timber	Mc	0,006	531,81	3,19
Varnish	L	0,200	10,28	2,06
Solvent	L	0,100	6,6	0,66
TOTAL				**18,67**

Source: Author's projection.

b.

The calculation of standard expenses with direct manual labour:

In the standard expenses ***T*** with manual labour, we included the social security expenses.

Table no.5. Standard expenses with direct manual labour

Crt. No.	Operation	Standard Time	Standard Tariff	Standard Value (RON)
1	Gross Processing	1 h 00'	7	7
2	Finishing	0h 40'	5	3.33
3	Packing and handling	0h 10'	3	0.5
4	**TOTAL**	**1h 50'**	**/**	**10.83**

Source: Author's projection.

c. ***The calculation of standard overhead costs***

In order to calculate the standard overhead costs, from the Table 1 we determine the variable costs and the semi-variable costs. Regarding the fabrication time for the „Boston chair", technically 1 hour and 50 minutes are necessary.

Table no.6. The production situation for the „Boston chair"

Crt.No.	Period for producing the „Boston chair"	Number of products *piece.*	Fabrication time *-hours-*
1	**January 2011**	300	550
2	**February 2011**	500	916
3	**August 2011**	300	550
4	**October 2011**	200	366
5	**November 2011**	200	366
6	**February 2012**	300	550
7	**May 2012**	300	550
8	**TOTAL**	**2100**	**3850**

Source: Author's projection.

The *average production(Q_m)* can be calculated after the next formula:

$$Q_m = \frac{Np}{} = \frac{2100}{} = 300 \text{ products/month} \quad (3)$$

where: Np= number of products;
Nop= number of periods;

Table no.7. Electricity and water expenses in the production period

Crt.No.	*Month*	*Expenses with electricity and water*
1	**January 2011**	705
2	**February 2011**	2584
3	**August 2011**	1516,97

4	**October 2011**	1228,37
5	**November 2011**	2322,30
6	**February 2012**	2421,30
7	**May 2012**	2813,46
8	**TOTAL**	**13591,80**
Average Expenses: 13591,80 divided by 7 months = 1.941 RON/lunar		

Source: Author's projection.

Regarding the standard production, following the performance of the existent machinery, for the next period the managers consider a production capacity of 320 products on month, at the same time of production.

To determine the standard overhead costs, there must be used a series of calculations, specific to the standard costing method. Fixed expenses are considered constant over the mentioned period, so it no longer requires additional calculations. However, the variable costs have a key for a logical repartition. For achieving these calculations, we used the calculations according to professor Briciu's explained method (Briciu Sorin et al., 2010).

- **Calculating the average expenses with electricity and water :**

13591,8 RON: 7 months = 1941 RON/month

- **Calculating the share of standard production in the average production:**

$$P\% = (Qs/Qm \times 100) - 100 \quad (4)$$

where,

P%= share of standard production in the average production
Qs= standard production
Qm = average production

$$P\% = \frac{320}{300} \times 100 - 100 = \mathbf{6,66\%}$$

- **Calculating the variable standard expenses with electricity and water**

- Determination of the correlated variable expenses

$$CHV_{correlated} = CH_{average} + CH_{average} \times P\%, \quad (5)$$

where,

$CHV_{correlated}$ = *correlated variable expenses*
$CH_{average}$ = *average expenses with electricity and water*
P% = share of standard production in the average production

$CHV_{correlated}$ *=1941 + 1941 * 6,66% =* ***2069,10 RON***

- Determination of the standard variable expenses

$$CHV_{standard} = CHV_{correlated} - CHV_{correlated} \times Sf\% \quad (6)$$

where,

$CHV_{standard}$ = *standard variable expenses*
$CHV_{correlated}$ = *correlated variable expenses*
Sf% = Stimulation factor

The enterprise, through its engineers, established a stimulation factor of 3%. So, the standard variable expenses are corrected with 3%.

$CHV_{standard}$ = 2069,10 – 2069,10*3% = **2007,02 RON / month**

- **Determining the standard semi-variable expenses- auxiliary staff**

- Determining the semi-variable unit expenses

$$CH_{SVU} = \frac{Ch\ max - Ch\ min}{Qmax - Q\ min} \quad (7)$$

where,

CH_{SVU}= *standard semi-variable expenses*
Ch max= maximal expenses
Ch min= minimal expenses
Qmax= maximal production
Q min= minimal production

$$CH_{SVU} = \frac{70 - 40}{916\text{-}366} = \mathbf{0,054\ RON/\ hour}$$

- determining the expenses with the auxiliary staff ($Ch_{aux.staff}$*)*

$Ch_{aux.staff}$=Standard production in hours xCH_{SVU} =587 hours x 0,054 RON/hour = **31,16 RON**

- determining the ***standard*** *expenses with the auxiliary staff (*$CHV_{aux.staff}$*) at standard time*

$$CHV_{aux.staff} = Ch_{aux.staff} - Ch_{aux.staff} \times Sf\% \quad (8)$$

where,

$CHV_{aux.staff}$ = standard expenses with the auxiliary staff
$Ch_{aux.staff}$ = expenses with the auxiliary staff
Sf% = Stimulation factor

$CHV_{aux.staff}$ = 31,16 – 31,16 x 3 %= **30,22 RON**

After performing the calculations, according to the standard cost unique method, the overhead budget costs for the „Boston chair" is presented in Table 8:

Table no. 8. The overhead budget costs for the „Boston chair"

Crt.No.	Indicator	Average budget	Standard budget
1.	**Produced units**	**300**	**320**
2.	**Activity volume, *hours***	**550**	**587**
3.	**Fixed expenses:**	**1200**	**1200**
	Office depreciations	20	**20**
	Management wages and insurances	1000	**1000**
4.	**Variable expenses**	**1941**	**2007,02**
	Electricity expenses	*1941*	*2007,02*
5.	**Semi-variable expenses**	**48**	**30,22**
	Auxiliary employees wages	*48*	*30,22*
6.	**Overhead production budget**	**3189 RON**	**3237,02 RON**
7.	***Overhead unitary expenses***	***10,63 RON***	***10,11 RON***

Source: Author's projection.

After performing the standard overall production budget, we can present the standard cost sheet for the product „Boston chair":

Table no. 9. The standard cost sheet for the product „Boston chair"

I.	***Raw materials and other materials***			
Crt.no.	**Material name**	**Standard Consumption**	**Unitary standard price (RON)**	**Total Value –RON-**
1.	Beech timber	0,020	12,76	12,76
2.	Coniferous timber	0,006	3,19	3,19
3.	Varnish	0,200	2,06	2,06
4.	Solvent	0,100	0,66	0,6
	TOTAL 1			**18,67**
II.	***Manual Labour***			
Crt.no.	**Operation**	***Standard Time***	**Unitary standard price (RON)**	**Total Value *-RON-***
1.	Gross Processing	1 h 00'	7	7
2.	Finishing	0h 40'	5	3.33
3.	Packing and handling	0h 10'	3	0.5
	TOTAL 2			***10,83***
III.	***Overhead standard costs***			**10,11**
IV.	***Overall unitary standard cost for the „Boston chair":***			**39,61**

Source: Author's projection.

In this way, the standard costing method facilitates an analysis on the production factors, giving the stakeholders, especially to the managers, the key for controlling the costs in useful time.

After the cost budgeting is made on each product, the method gives the possibility to analyze each factor involved in the process. Due to the specific dimension of this paper, the analysis of the factors that influence the production process is a subject for another work.

5. CONCLUSIONS AND PAPER LIMITS

We reviewed the literature in the managerial accounting field, and we pointed out that the standard costing method has not only advantages, but disadvantages too. Even so, using the method in practice for enterprises with production activity, the method offers a real possibility to bring added value to the firm.

Using the standard costing methodology, in standard costing unique form, we calculated the costs of „Boston chair" product, based on the financial information from the financial accounting. For that, we separated the costs after the method's specific key of repartition. It was necessary to separate the overall expenses of a large period, on raw materials and material expenses, manual labour expenses and overhead expenses. The object of our calculation was to obtain the cost sheet of the chosen product, in order to manage the production process successfully.

Following the method, after calculating the standard costs, we could compare the standard costs with the effective costs, viewing the decisive involved factors in this way.

As a general conclusion of the paper and the main objective of the paper, it has been demonstrated that the modern cost calculation method „standard costing", is accessible to medium-sized enterprises from the furniture industry. The case study demonstrates that the chosen method is accessible and useful for controlling the costs of production.

Without the intention of being exhaustive, we consider that the paper accomplishes the research objective and opens the way for further research in the managerial accounting, in order to assist the management process and the decision making process, especially in the enterprises with production activity.

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